

UNITED STATES NUCLEAR REGULATORY COMMISSION

REGION II 245 PEACHTREE CENTER AVENUE NE, SUITE 1200 ATLANTA, GEORGIA 30303-1257

January 22, 2015

EA-14-158

Mr. Brian K. Taber Vice President Southern Nuclear Operating Company, Inc. Vogtle Electric Generating Plant 7821 River Road Waynesboro, GA 30830

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT – NRC INSPECTION REPORT

NUMBER 05000424/2014009 AND 05000425/2014009, PRELIMINARY GREATER

THAN GREEN FINDING AND RELATED APPARENT VIOLATION

Dear Mr. Taber:

This letter discusses a finding that has been preliminarily determined to be White (i.e., low to moderate safety significance), and has resulted in the need for further evaluation to determine the final significance, and therefore the need for additional U.S. Nuclear Regulatory Commission (NRC) action. A self-revealing finding and related Apparent Violation (AV) of Technical Specification 5.4.1, Procedures, was identified. As described in Section 2RS8 of the enclosed inspection report (IR), a Type B quantity of radioactive waste was shipped in a Type A cask by Southern Nuclear Operating Company (SNC) to the Energy Solutions radioactive waste processing facility located in Barnwell, South Carolina.

This finding was assessed in accordance with guidance provided in the applicable Significance Determination Process (SDP), as described in the attached IR, and was preliminarily determined to be of low to moderate safety significance (White). The final resolution of this finding will be conveyed in separate correspondence.

In accordance with NRC Inspection Manual Chapter (IMC) 0609, we intend to complete our evaluation using the best available information, and issue our final determination of safety significance within 90 days of the date of this letter. The SDP encourages an open dialogue between the NRC staff and the licensee; however, the dialogue should not impact the timeliness of the staff's final determination.

Before we make a final decision on this matter, we are providing you with an opportunity to: (1) attend a Regulatory Conference where you can present to the NRC your perspective on the facts and assumptions the NRC used to arrive at the finding and assess its significance; or (2) submit your position on the finding to the NRC in writing. If you request a Regulatory Conference, it should be held within 30 days of the receipt of this letter, and we encourage you to submit supporting documentation at least 1 week prior to the conference, in an effort to make

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the conference more efficient and effective. The focus of the Regulatory Conference is to discuss the significance of the finding and not necessarily the root cause(s), or corrective action(s), associated with the finding. If a Regulatory Conference is held, it will be open for public observation. If you decide to submit only a written response, such submittal should be sent to the NRC within 30 days of your receipt of this letter. If you decline to request a Regulatory Conference or to submit a written response, you relinquish your right to appeal the final SDP determination, in that by not doing either, you fail to meet the appeal requirements stated in the Prerequisite and Limitation sections of Attachment 2 of NRC IMC 0609.

Please contact Brian Bonser at 404-997-4653, and in writing, within 10 days from the issue date of this letter to notify the NRC of your intentions. If we have not heard from you within 10 days, we will continue with our significance determination and enforcement decision. The final resolution of this matter will be conveyed in separate correspondence.

Because the NRC has not made a final determination in this matter, no Notice of Violation (NOV) is being issued for these inspection findings at this time. In addition, please be advised that the number and characterization of the AV described in this letter may change as a result of further NRC review.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public inspections, exemptions, requests for withholding," of the NRC's "Rules of Practice," a copy of this letter, without its Enclosure, will be made available electronically for public inspection in the NRC Public Document Room, and in the NRC's Agencywide Documents Access and Management System (ADAMS); accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

Sincerely,

/RA/

Anthony T. Gody, Director Division of Reactor Safety

Docket Nos. 50-424 and 50-425 License Nos. NPF-68 and NPF-81

Enclosures:

1. Inspection Report 05000424, 425/2014009 w/Attachment: Supplementary Information

2. Additional Regulatory Requirements

cc: Distribution via Listserv

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Enclosures:

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2. Additional Regulatory Requirements

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⊠ PUBI	ICLY AVAILABLE (Letter or	ily) 🗌 NON-PUBLIC	LY AVAILABLE	☐ SENSITIVE	☑ NON-SENSITIVE
ADAMS: ⊠ Yes	ACCESSION NUMBER:	ML15022A678	SUNSI REVI	EW COMPLETE	☑ FORM 665 ATTACHED

OFFICE	RII:DRS/PSB1	RII:DRS/PSB1	RII:DRS/PSB1	RII:DRS/PSB1	RII:DRP/BR2	RII:EICS	RII:ORA	NRR	OE
SIGNATURE	ADN for CMD4	ADN for WSP1	ADN	BRB1	MEF1	DLG2	SAP1	LRC1	TJM7
NAME	C. Dykes	W. Pursley	A. Nielsen	B. Bonser	M. Franke	D. Gamberoni	S. Price	L. Casey	T. Marenchin
DATE	12/ 11 /2014	12/ 11 /2014	12/ 11 /2014	12/ 11 /2014	12/ 11/2014	12/ 11 /2104	12/ 11 /2014	1/ 5 /2015	1/ 21 /2015
OFFICE	RII:DRS	RII:DRS							
SIGNATURE	TXR	ATG							
NAME	T. Reis	A. Gody							
DATE	12/ 16 /2014	1/ 22 /2015							

OFFICIAL RECORD COPY

Letter to Brian K. Taber from Anthony T. Gody dated January 22, 2015.

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT – NRC INSPECTION REPORT NUMBER 05000424/2014009 AND 05000425/2014009, PRELIMINARY GREATER THAN GREEN FINDING AND RELATED APPARENT VIOLATION

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U. S. NUCLEAR REGULATORY COMMISSION REGION II

Docket Nos:	50-424 and 50-425
License Nos:	NPF-68 and NPF-81
Report Nos:	05000424/2014009 and 05000425/2014009
Licensee:	Southern Nuclear Operating Company, Inc. (SNC)
Facility:	Vogtle Electric Generating Plant, Units 1 and 2
Location:	Waynesboro, GA 30830
Dates:	August 22, 2014, through December 12, 2014
Inspectors:	William Pursley, Health Physicist Carmen Dykes, Health Physicist Adam Nielsen, Senior Health Physicist
Approved by:	Anthony T. Gody, Director Division of Reactor Safety

SUMMARY

Inspection Report (IR) 05000424, 425/2014-009; 08/22/2014 – 12/12/2014; Vogtle Electric Generating Plant, Units 1 and 2; Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

The report covered a 16-week period of onsite and in-office inspection by the Vogtle resident inspectors and Region-based staff. One preliminary White finding and associated apparent (AV) violation was identified. The significance of inspection findings are indicated by their color (i.e., greater than Green, Green, White, Yellow, or Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310; "Aspects Within The Cross-Cutting Areas," dated December 19, 2013. All violations of the U.S. Nuclear Regulatory Commission (NRC) requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated July 9, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

Cornerstone: Public Radiation Safety

<u>TBD</u>. A self-revealing, preliminary White, AV of Technical Specification (TS) 5.4.1., Procedures, occurred on June 24, 2014, when a Type A shipping cask containing Type B radioactive waste (spent resin) was shipped by Southern Nuclear Operating Company (SNC) from the Vogtle Electric Generating Plant (VEGP), Units 1 and 2, to the Energy Solutions radioactive waste processing facility located in Barnwell, South Carolina. The serial number of the High Integrity Container (HIC) containing the spent resin was not verified when it was removed from its storage process shield and placed in the shipping cask, with the result that a HIC with a Type B quantity of resin was transported in a Type A shipping cask. This error resulted in multiple violations of NRC and Department of Transportation (DOT) regulations, which are included in Enclosure 2. The licensee entered the event in the corrective action program (CAP) as condition report (CR) 831652. Immediate corrective actions included suspension of radioactive waste shipments at Southern Nuclear Operating Company (SNC) facilities, and requalification of plant Vogtle radioactive shippers and oversight personnel.

The licensee's failure to document the location of radioactive waste stored in the process shields, as required by licensee procedure 46111-C, "Storage of Radwaste in Outdoor Process Shields," was a performance deficiency (PD). The PD was more than minor because it was associated with the public radiation safety cornerstone attribute of Program & Process (transportation program), and adversely impacted the cornerstone objective of ensuring adequate protection of public health and safety from exposure to RAM released into the public domain. A Type B quantity of material left the licensee's facility and entered the public domain in an inadequate (Type A) container. The inspectors determined this finding has a cross-cutting aspect of in the Documentation component of the Human Performance area, because the licensee did not create and maintain complete, accurate, and up-to-date documentation used in preparing shipments of radioactive waste.

REPORT DETAILS

2. RADIATION SAFETY

<u>2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation</u>

a. <u>Inspection Scope</u>

The inspectors reviewed an event involving a shipment of Type B quantities of radioactive waste in a Type A container, as submitted by the licensee in Event Report, NL-14-1308, "10 CFR 71.95(b) Report of Radwaste Shipping Error."

b. Findings:

<u>Introduction</u>: A self-revealing finding was identified for the shipment of a container of radioactive resin requiring a Type B cask on public highways in an inadequate Type A cask. An apparent violation (AV) of Technical Specification (TS) 5.4.1, Procedures, was identified for the failure to follow a waste storage procedure.

Description: On June 11, 2014, the licensee began preparations for the shipment of a High-Integrity Container (HIC) of radioactive resin from plant Vogtle to a radioactive waste processor located in Barnwell, South Carolina. Prior to shipment, the licensee stored the HICs in shielded concrete containers (process shields) in an area designated for this purpose. Records maintained by the Health Physics department showed HIC -S/N #003698-19 was stored in process shield #10, and was classified as Low Specific Activity (LSA) waste. However, process shield #10 actually contained HIC S/N #605163-02, which contained a quantity of resin that exceeded an A2 value of RAM (as defined in 10 CFR 71, Appendix A). In addition, HIC S/N #605163-02 did not meet the dose rate requirements for shipment as LSA (less than 1 Rem/hr at 3 meters from the unshielded package). Therefore, this HIC required a Type B cask approved by the NRC via a Certificate of Compliance (CoC). Process Shield #10 was opened and the HIC was removed and placed into a 10-142A Series I shipping container (Type A cask). The licensee did not verify that the HIC serial number was the one they intended to ship, nor did they perform additional surveys of the unshielded contents when it was removed from the process shield. A root cause evaluation determined that the licensee did not update their inventory records after a program of resampling HICs had resulted in changes to some of their storage locations, including process shield #10.

On June 23, 2014, the loaded shipping cask was surveyed, and the external (shielded) dose rates met all transportation requirements. On June 24, 2014, the cask was transported to Energy Solutions Barnwell Processing Facility, via public highway, as an LSA shipment. On June 25, 2014, Energy Solutions informed Southern Nuclear Operating Company (SNC) that the HIC they had received was not S/N #003698-19, as indicated on the shipping manifest, but was actually S/N #605163-02. After removal from the shipping cask, Energy Solutions performed surveys on the HIC and discovered an unshielded dose rate of 1.3 Rem/hr at 3 meters from the bottom, thereby exceeding the LSA limit.

Analysis: The licensee's failure to document the location of radioactive waste stored in the process shields, as required by licensee Procedure 46111-C, "Storage of Radwaste in Outdoor Process Shields," was a performance deficiency (PD). The PD was more than minor because it was associated with the public radiation safety cornerstone attribute of Program & Process (transportation program), and adversely impacted the cornerstone objective of ensuring adequate protection of public health and safety from exposure to radioactive waste released into the public domain. The finding was assessed for significance in accordance with Inspection Manual Chapter (IMC) 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," with supporting information from IMC 0609, Appendix D, "Public Radiation Safety Significance Determination Process."

Inspection Manual Chapter 0609, Appendix M, was chosen because IMC 0609, Appendix D, does not specifically address the situation where a Type A package was used to ship radioactive quantities requiring a Type B package. Since Type B packages can be used to transport larger amounts of radioactive waste (as allowed by the CoC), the design and testing requirements are more rigorous than for Type A packages. Type A packages can be used to transport LSA material, however an unshielded dose rate limit was established at 1 Rem/hr at 3 meters, to ensure adequate protection of members of the public and emergency response personnel during accident conditions, when a more robust (Type B) package was not used. In this case, a Type B package was not used and the LSA unshielded dose rate limits were exceeded, thereby increasing the safety significance of the finding. Based on these circumstances, it was determined to be of low to moderate safety significance (White). The inspectors determined this finding had a cross-cutting aspect of [H.7] in the Documentation component of the Human Performance area, because the licensee did not create and maintain complete, accurate, and up-to-date documentation used in preparing shipments of radioactive waste.

<u>Enforcement</u>: Vogtle Electric Generating Plant (VEGP) TS 5.4.1, Procedures, required written procedures as recommended by Regulatory Guide 1.33. Regulatory Guide 1.33, Appendix A, Section 7, recommends, in part, procedures for control of RAM to minimize potential releases of materials to the environment and personnel exposure from spent resin and filter sludge handling. Procedure 46111-C, "Storage of Radwaste In Outdoor Process Shields," required the licensee to maintain records of resin HICs being stored on the storage pad, including specific information describing the contents of each HIC and the process shield number. Also, 10 CFR 71.14 states, in part, a licensee is exempt from the Type B packaging requirements provided that the package contains LSA, and that the external radiation dose rate is less than or equal to 10 mSv/h (1 rem/h) at a distance of 3 meters from the unshielded material.

Contrary to the above, on or prior to June 24, 2014, the licensee failed to maintain accurate records of radioactive waste being stored in designated areas. Specifically, information regarding the location and contents of the HICs was not updated when the contents of process shield #10 were changed. As a result, on June 24, 2014, the licensee shipped a HIC containing a quantity of radioactive waste that exceeded an A_2 value in a Type A cask, that did not meet the unshielded dose rate requirements for

LSA. The licensee's shipping error also resulted in non-compliance with numerous additional regulatory requirements, as identified in Enclosure 2. This finding was entered into the licensee's corrective action program (CAP) as Condition Report (CR) 831652. Pending determination of the finding's final safety significance, this finding is identified as an AV 05000424, 425/2014009-01, Shipment of a Type B quantity of RAM in a Type A Container.

4OA3 Followup of Events and Notices of Enforcement Discretion

(Closed) LER NL-14-1308, 10 CFR 71.95(b) Report of Radwaste Shipping Error

The inspection of the Licensee Event Report is discussed in section 2RS8 as a finding in radioactive waste processing and shipment.

4OA6 Management Meetings (Including Exit Meeting)

On December 12, 2014, the inspection results were presented to Mr. Brian Taber and other members of licensee management. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: Supplementary Information

SUPPLEMENTARY INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

Vogtle Site

- M. Johnson, Manager, Health Physics
- J. Dixon, Corporate Functional Area Manager, Health Physics and Emergency Preparedness
- R. Collins, Manager, Chemistry
- G. Gunn, Manager, Regulatory Affairs (Acting)
- K. Taber, Vogtle VP
- G. Saxon, Plant Manager
- M. Johnson, Radiation Protection Manager
- C. Bourne, Radiation Protection Support Superintendent
- K. Walden, Licensing Engineer
- K. Morrow, Licensing Engineer

SNC Corporate

- P. Ivey, Regulatory Affairs VP
- M. Meier, Regulatory Affairs VP
- C. Pierce, Regulatory Affairs Director
- J. Dixon, Fleet Radiation Protection Manager
- T. Honeycutt, Lead Licensing Engineer
- J. Branum, Lead Licensing Engineer
- D. Neve, Nuclear Licensing
- R. Wheeler, Sr. Health Physicist

U. S. NRC Region II

- T. Reis, Director DRS
- A. Nielsen, Sr. Health Physicist
- B. Bonser, Branch Chief
- M. Cain, Sr. Resident Inspector
- A. Alen, Resident Inspector

LIST OF REPORT ITEMS

Opened

05000424, 425/2014009-01 AV Shipment of a Type B quantity of RAM in a

Type A Container (2RS8)

Closed

LER NL-14-1308 10 CFR 71.95(b) Report of Radwaste

Shipping Error (4OA3)

DOCUMENTS REVIEWED

Section 2RS8: Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

Procedures and Manuals

46111-C, Storage of Radwaste in Outdoor Process Shields, Revision 6.1 NMP-HP-405, Shipment of Radioactive Waste and Radioactive Material, Version 2.0

Records and Data

NL-14-1308, 10 CFR 71.95(b) Report of Radwaste Shipping Error, 8/22/14

Shipping Record RVRS-14-009, LSA, Resin

Shipping Record RVRS-14-009*, Type B, Resin

Survey #171866, Plant Vogtle Radiological Information, Cask Truck Survey 6/24/2014 09:59

Survey #149277, Plant Vogtle RPF Resin Vault #4 (ORPF), 6/19/2012 14:04

Fleet Event Alerts, RED - V-14-16 An Incorrect High Integrity Container (HIC) was sent to a vendor

NMP-GM-002-F47, Apparent Cause Management Briefing, Version 5, 7/1/2014

NMP-GM-002-F02, Apparent Cause Determination Report, Revision1, 7/17/2014

Form 540 Uniform Low-Level Radioactive Waste Manifest for shipment RVRS-14-009, 6/24/2014

Form 540 Uniform Low-Level Radioactive Waste Manifest for shipment RVRS-14-009 Corrected, 6/30/2014

Energy Solutions Letter, Subject: Required Documentation for Industrial Packagings and Authorized Type A Packages, 11/18/2013

Energy Solutions Technical 3002, Cask Handling Procedure for US DOT Specification 7 A, Type A Transportation Cask, Revision 9, 5/17/2012

10 CFR 61 Documentation, The Package Characterization for Resin Liner/HIC 605163-02, 7/23/2013

South Carolina Radioactive Waste Transport Permit 0311-10-14-X Suspension Letter, July 3, 2014

Corrective Action Program Documents

CR 831652 CAR 210971

LIST OF ACRONYMS AND ABBREVIATIONS

AV	Apparent Violation	PD	Performance Deficiency
CAP	Corrective Action Program	SCO	Surface Contaminated
CoC	Certificate of Compliance		Object
CR	Condition Report	SDP	Significance Determination
DOT	Department of Transportation		Process
HIC	High-Integrity Container	SNC	Southern Nuclear Operating
IMC	Inspection Manual Chapter		Company
IR	Inspection Report	TS	Technical Specification
LSA	Low Specific Activity	VEGP	Vogtle Electric Generating
NOV	Notice of Violation		Plant

<u>ADDITIONAL REGULATORY REQUIREMENTS</u>

Relevant NRC Regulations

10 CFR 71.5 requires that NRC licensees ship RAM in accordance with the applicable provisions of the Department of Transportation (DOT) Regulations found in 49 CFR 100-177.

10 CFR 37.71(b): Any licensee transferring Category 2 quantities of RAM to a licensee of the Commission or an Agreement State, prior to conducting such transfer, shall verify with the NRC's license verification system, or the license issuing authority, that the transferee's license authorizes the receipt of the type, form, and quantity of RAM to be transferred.

10 CFR 37.75(b): Each licensee that plans to transport, or deliver to a carrier for transport, licensed material that is a Category 2 quantity of RAM outside the confines of the licensee's facility, or other place of use or storage, shall coordinate the shipment no later than arrival time, and the expected shipment arrival with the receiving licensee.

10 CFR Part 20, Appendix G, Section I (B and C) requires shipment information, such as individual radionuclide activities and total radioactivity, be included on the waste manifest (NRC Forms 540 and 541).

Relevant DOT Regulations

49 CFR 172.202(a): The shipping description of a hazardous material on the shipping paper must include:

- (1) The identification number prescribed for the material as shown in Column (4) of the §172.101 table.
- (2) The proper shipping name prescribed for the material in Column (2) of the §172.101 table.
- (5) Except for transportation by aircraft, the total quantity of hazardous materials covered by the description must be indicated (by mass or volume, or by activity for Class 7 materials), and must include an indication of the applicable unit of measurement; for example "200 kg" (440 pounds) or "50 L" (13 gallons). The following provisions also apply:

49 CFR 172.203(d) Radioactive material. The description for a shipment of a Class 7 (radioactive) material must include the following additional entries as appropriate:

- (1) The name of each radionuclide in the Class 7 (radioactive) material that is listed in §173.435 of this subchapter. For mixtures of radionuclides, the radionuclides required to be shown must be determined in accordance with §173.433(g) of this subchapter. Abbreviations (e.g., 99Mo) are authorized.
- (3) The activity contained in each package of the shipment in terms of the appropriate SI units (e.g., Becquerels (Bq), Terabecquerels (TBq), etc.). The activity may also be stated in appropriate customary units (Curies (Ci), milliCuries (mCi), microCuries (uCi),

- etc.) in parentheses following the SI units. Abbreviations are authorized. Except for plutonium-239 and plutonium-241, the weight in gRAM or kilogRAM of fissile radionuclides may be inserted instead of activity units. For plutonium-239 and plutonium-241, the weight in gRAM of fissile radionuclides may be inserted in addition to the activity units.
- (4) The category of label applied to each package in the shipment. For example: "RADIOACTIVE WHITE-I."
- (5) The transport index assigned to each package in the shipment bearing RADIOACTIVE YELLOW-III or RADIOACTIVE YELLOW-III labels.
- 49 CFR 172.403 Class 7 (radioactive) material. (a) Unless excepted from labeling by §173.421 through §173.427 of this subchapter, each package of RAM must be labeled as provided in this section.
- 49 CFR 173.427(a)(1)(a). In addition to other applicable requirements specified in this subchapter, LSA materials and SCO, unless excepted by paragraph (c) or (d) of this section, must be packaged in accordance with paragraph (b) of this section, and must be transported in accordance with the following conditions: (1) The external dose rate may not exceed an external radiation level of 10 mSv/h (1 rem/h) at 3 meters from the unshielded material.
- 49 CFR 173.416(a) Authorized Type B packages. Each of the following packages are authorized for shipment of quantities exceeding A1 or A2, as appropriate: (a) Any Type B(U) or Type B(M) packaging that meets the applicable requirements of 10 CFR Part 71, and that has been approved by the U.S. Nuclear Regulatory Commission may be shipped pursuant to §173.471.
- 49 CFR 173.431(a). Except for LSA material and SCO, a Type A package may not contain a quantity of Class 7 (radioactive) materials greater than A_1 for special form Class 7 (radioactive) material, or A_2 for normal form Class 7 (radioactive) material as listed in §173.435, or, for Class 7 (radioactive) materials not listed in §173.435, as determined in accordance with §173.433.