



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

February 8, 2017

EA-17-014

Mr. Brian K. Taber  
Site 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 05000424/2017503 AND 05000425/2017503, PRELIMINARY WHITE  
FINDING AND RELATED APPARENT VIOLATION

Dear Mr. Taber:

On December 28, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Vogtle Units 1 and 2, and the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

Section 4OA2 of the enclosed report documents a finding with an associated apparent violation (AV) that the NRC has preliminarily determined to be White with low to moderate safety significance. An NRC-identified finding and related AV of Title 10 of the *Code of Federal Regulations* Parts 50.54(q)(2), 50.47(b)(4), and Appendix E, Section IV.B, was identified. As described in the enclosed inspection report (IR), Vogtle's emergency classification scheme for Radiological Effluent emergency action levels (EALs) RG1 (General Emergency) and RS1 (Site Area Emergency), contained radiation monitor threshold values which were significantly different (forty-two times different) due to a transposition of the threshold values. We assessed the significance of the finding using the applicable Significance Determination Process (SDP) and readily available information. We are considering escalated enforcement for the AV consistent with our Enforcement Policy, which can be at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. Because we have not made a final determination, no notice of violation is being issued at this time. Please be aware that further NRC review may prompt us to modify the number and characterization of the AV.

We intend to issue our final significance determination and enforcement decision, in writing, within 90 days from the date of this letter. The NRC's SDP is designed to encourage an open dialogue between your staff and the NRC; however, neither the dialogue nor the written information you provide should affect the timeliness of our final determination.

Before we make a final decision, you may choose to communicate your position on the facts and assumptions we used to arrive at the finding and assess its significance by either (1) attending and presenting at a Regulatory Conference or (2) submitting your position in writing. The focus of

a Regulatory Conference is to discuss the significance of the finding. Written responses should reference the IR and enforcement action (EA) numbers associated with this letter in the subject line.

If you request a Regulatory Conference, it should be held within 40 days of your receipt of this letter. Please provide information you would like us to consider or discuss with you at least 10 days prior to any scheduled conference. If you choose to attend a Regulatory Conference, it will be open for public observation. If you decide to submit only a written response, it should be sent to the NRC within 40 days of your receipt of this letter. If you choose not to request a Regulatory Conference or to submit a written response, you will not be allowed to appeal the NRC's final significance determination.

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

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC, 20555-0001: with copies to the Regional Administrator, Region II; and the NRC resident inspector at the Vogtle Electric Generating Plant.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390 "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

**/RA/**

Anthony T. Gody, Director  
Division of Reactor Safety

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

Enclosure:  
Inspection Report 05000424, 425/2017503  
w/Attachment: Supplementary Information

cc: Distribution via Listserv

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT – NRC INSPECTION REPORT  
 NUMBER 05000424/2017503 AND 05000425/2017503, PRELIMINARY WHITE  
 FINDING AND RELATED APPARENT VIOLATION

**DISTRIBUTION:**

- L. Casey, NRR
- A. Richardson, NSIR
- B. Fretz, OE
- T Gody, RII
- M. Miller, RII
- J. Munday, RII
- M. Franke, RII, DRP
- C. Rapp, RII, SR PE
- D. Mas, RII, PE
- M. Endress, RII, SRI
- A. Alen, RII, RI
- S. Price, RII, EICS
- M. Kowal, RII
- S. Sandal, RII
- B. Bonser, RII
- OEMAIL
- RIDSNRRDIRS
- PUBLIC

PUBLICLY AVAILABLE       NON-PUBLICLY AVAILABLE       SENSITIVE       NON-SENSITIVE  
 ADAMS:  Yes      ACCESSION NUMBER: \_\_\_\_\_       SUNSI REVIEW COMPLETE       FORM 665 ATTACHED

|              |            |                           |             |             |             |            |          |
|--------------|------------|---------------------------|-------------|-------------|-------------|------------|----------|
| OFFICE       | RII:DRS    | RII:DRP                   | RII:DRS     | RII:DRP     | RII:EICS    | RII:DRS    |          |
| SIGNATURE    | <b>SPS</b> | <b>AXA1 VIA<br/>EMAIL</b> | <b>BRB1</b> | <b>SRS5</b> | <b>MXK7</b> | <b>AT</b>  |          |
| NAME         | SSANCHEZ   | AALEN                     | BBONSER     | SSANDAL     | MKOWAL      | AGODY      |          |
| DATE         | 2/ 6 /2017 | 2/ 7 /2017                | 2/8 /2017   | 2/7/2017    | 2/8 /2017   | 2/ 8 /2017 | 2/ /2017 |
| E-MAIL COPY? | YES NO     | YES NO                    | YES NO      | YES NO      | YES NO      | YES NO     | YES NO   |

OFFICIAL RECORD COPY      DOCUMENT NAME: S:\DRS NEWPLANT SUPPORT BRANCH 1\VOGTLE UNIT 1 AND 2 EAL  
 ISSUEVOGTLE EAL ERRORS CHOICE LETTER R2.DOCX

**U. S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket Nos: 50-424 and 50-425

License Nos: NPF-68 and NPF-81

Report Nos: 05000424/2017503 and 05000425/2017503

Licensee: Southern Nuclear Operating Company, Inc. (SNC)

Facility: Vogtle Electric Generating Plant, Units 1 and 2

Location: Waynesboro, GA 30830

Dates: October 6, 2016, through December 28, 2016

Inspectors: Steven Sanchez, Senior EP Inspector  
Alejandro Alen, Resident Inspector

Approved by: Anthony T. Gody, Director  
Division of Reactor Safety

Enclosure

## SUMMARY

Inspection Report (IR) 05000424, 425/2017-503; 10/06/2016 – 12/28/2016; Vogtle Electric Generating Plant, Units 1 and 2; Problem Identification and Resolution

The report covered a period of onsite and in-office inspection by the 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 April 29, 2015. Cross-cutting aspects are determined using IMC 0310; "Aspects Within The Cross-Cutting Areas," dated December 4, 2014. All violations of the U.S. Nuclear Regulatory Commission (NRC) requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated November 1, 2016. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

### **Cornerstone: Emergency Preparedness**

**TBD:** The inspectors identified an apparent violation (AV) of Title 10 CFR Part 50.54(q)(2) for failure to follow and maintain the effectiveness of emergency plans which met the requirements of 10 CFR Part 50.47(b)(4) and Part 50 Appendix E, to have a standardized emergency action levels (EAL) scheme in use based on facility system and effluent parameters. Specifically, the licensee's emergency classification scheme for Radiological Effluent EAL RG1 (General Emergency) and RS1 (Site Area Emergency), contained radiation monitor threshold values which were significantly different (forty-two times different) due to a transposition of the threshold values. The licensee took immediate corrective actions by entering the issue into the corrective action program as condition report (CR) 10283097 and providing corrected EAL declaration threshold values to appropriate management and decision-makers (shift managers/emergency directors) via Standing Order C-2016-008.

The performance deficiency was determined to be more than minor because it was associated with the Emergency Preparedness cornerstone attribute of Procedure Quality and adversely affected the cornerstone objective of ensuring that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, the licensee's ability to declare a Site Area Emergency (SAE) and General Emergency (GE) based on effluent radiation monitor values was degraded in that event classification could be delayed and unnecessary Protective Action Recommendations could be provided to the public. The finding was assessed for significance in accordance with NRC Inspection Manual Chapter (IMC) 0609, Appendix B, "Emergency Preparedness Significance Determination Process." The inspectors determined that the finding constituted a degraded rather than lost risk significant planning standard function and accordingly is assigned White significance. Additionally, the over-conservative threshold values could result in an over classification and unnecessary PARs to the public. In accordance with IMC 0609, Appendix B, an EAL over-classification that would result in unnecessary PARs for the public is assigned White Significance. Because these two findings resulted from the same performance deficiency, one White finding with two examples will be cited.

The cause of the finding was determined to be associated with a cross-cutting aspect in the change management component of the human performance area because the licensee failed to use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority [H.3]. (Section 40A2)

## REPORT DETAILS

### Cornerstone: Emergency Preparedness

#### 4OA2 Problem Identification and Resolution

##### a. Inspection Scope

During the fourth quarter of 2016, as part of the normal review of corrective action program (CAP) items, the inspectors flagged condition report (CR) 10283097, "Transpositions of Threshold Values for Emergency Action Levels" for a more detailed review. This CR was written due to errors identified during the licensee's response efforts to address NRC Requests for Additional Information associated with a License Amendment Request (LAR).

##### b. Findings:

Introduction: The inspectors identified an apparent violation (AV) of Title 10 CFR Part 50.54(q)(2) for failure to follow and maintain the effectiveness of emergency plans which met the requirements of 10 CFR Part 50.47(b)(4) and Part 50 Appendix E, to have a standardized emergency action levels (EAL) scheme in use based on facility system and effluent parameters. Specifically, the licensee's emergency classification scheme for Radiological Effluent EAL RG1 (General Emergency) and RS1 (Site Area Emergency), contained radiation monitor threshold values which were significantly different (forty-two times different) due to a transposition of the threshold values.

Description: In October 2016 the licensee identified that the EAL declaration threshold values for RE-12444E (plant vent radiation monitor) and RE-12839E (steam jet air ejector radiation monitor) had been transposed during a revision to incorporate updated radiation threshold values in October 2014. This error was identified during licensee research to address NRC Requests for Additional Information associated with the LAR for adopting Revision 6 of NEI 99-01, Development of Emergency Action Levels for Non-Passive Reactors. The error resulted in the RE-12444E threshold value being  $2.1 \times 10^3$  micro curies per cubic centimeter (instead of 50 micro curies per cubic centimeter) and the RE-12839E threshold value being 50 micro curies per cubic centimeter (instead of  $2.1 \times 10^3$  micro curies per cubic centimeter) for the Abnormal Radiological Levels/Radiological Effluent General Emergency (GE) classification. The error also resulted in the RE-12444E threshold value being  $2.1 \times 10^2$  micro curies per cubic centimeter (instead of 5 micro curies per cubic centimeter) and RE-12839E threshold value being 5 micro curies per cubic centimeter (instead of  $2.1 \times 10^2$  micro curies per cubic centimeter) for the Abnormal Radiological Levels/Radiological Effluent Site Area Emergency (SAE) classification. These incorrect threshold values were forty-two times greater for RE-12444E and forty-two times less for RE-12839E. The non-conservative RE-12444E and over-conservative RE-12839E threshold values were contained in the Emergency Plan and implementing procedure NMP-EP-110-GL03, "Vogtle Electric Generating Plant EALs – Initiating Conditions, Threshold Values, and Basis".

These transposed threshold values degraded the licensee's ability to make timely and accurate GE and SAE classifications based on abnormal radiological effluent initiating conditions. Decision-makers would have had to rely on other means to classify the event (e.g. dose assessments or field monitoring data), which could delay such a

declaration. Additionally, the overly conservative threshold values could result in over-classification and unnecessary Protective Action Recommendations (PARs) to the public. The EALs noted that dose assessment results were the preferred methodology for determining whether the EAL thresholds had been met. However, the EALs also noted that necessary declarations should not be delayed awaiting dose assessment results and the Emergency Director should not wait until the 15 minutes have elapsed. During a rapidly escalating radiological event, it is possible that a dose assessment would not be available within 15 minutes since augmented emergency response personnel may not have sufficient time to staff the emergency response facilities. The licensee took immediate corrective actions by entering the issue into the CAP as CR 10283097 and providing corrected EAL declaration threshold values to appropriate management and decision-makers (shift managers / emergency directors) via Standing Order C-2016-008.

Analysis: The failure to maintain the effectiveness of an emergency plan that met the requirements of Title 10 CFR Part 50.47(b)(4) and Part 50 Appendix E to have a standardized EAL scheme in use based on facility system and effluent parameters, was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the Emergency Preparedness cornerstone attribute of Procedure Quality and adversely affected the cornerstone objective of ensuring that the licensee was capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, the licensee's ability to declare a SAE and GE based on effluent radiation monitor values was degraded in that event classification could be delayed and unnecessary PARs could be provided to the public.

The finding was assessed for significance in accordance with NRC Inspection Manual Chapter (IMC) 0609, Appendix B, "Emergency Preparedness Significance Determination Process." The inspectors determined the licensee was noncompliant with 10 CFR 50.54(q)(2), risk significant planning standard (RSPS) 50.47(b)(4), and Appendix E, Section IV.B in that, the abnormal radiological effluent EALs, RG1 and RS1, contained classification threshold values forty-two times different than the correct values. This would require use of other means (dose assessment or actual field readings) to determine whether a SAE or GE threshold had been exceeded, which could delay the declaration. The inspectors determined that the finding constituted a degraded rather than lost RSPS function and preliminarily is assigned White significance. Additionally, the over-conservative threshold values could result in an over-classification and unnecessary PARs to the public. In accordance with IMC 0609, Appendix B, an EAL over-classification that would result in unnecessary PARs for the public is assigned White Significance. Because these two findings resulted from the same performance deficiency, one preliminary White finding with two examples will be cited.

The cause of the finding was determined to be associated with a cross-cutting aspect in the change management component of the human performance area because the licensee failed to use a systematic process for evaluating and implementing changes so that nuclear safety remains the overriding priority [H.3].

Enforcement: Title 10 CFR Part 50.54(q)(2) requires that a holder of a nuclear power reactor operating license under this part, shall follow and maintain the effectiveness of an emergency plan that meets the planning standards in 10 CFR Part 50.47(b) and the requirements in Appendix E to this part. Specifically, Title 10 CFR Part 50.47(b)(4)

requires a standard emergency classification and action level scheme, the bases of which include facility and system effluent parameters in use by the nuclear facility licensee, and State and local response calls for reliance on information by facility licensees for determinations of minimum initial offsite response measures. Title 10 CFR Part 50, Appendix E, Section IV.B., "Assessment Actions," requires that means to be used for determining the magnitude of, and for continuously assessing the impact of, the release of radioactive materials shall be described, including EALs that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other federal agencies. The EALs shall be based on in-plant conditions and instrumentation, in addition to onsite and offsite monitoring.

Contrary to the above, from October 2014 to October 2016, the licensee failed to maintain the effectiveness of their emergency plan and a standard emergency classification scheme which included facility effluent parameters. Specifically, the emergency classifications RG1 and RS1 contained effluent radiation monitor threshold values for RE-12444E (plant vent radiation monitor) and RE-12839E (steam jet air ejector radiation monitor) that were forty-two times different than the correct values. These radiation monitors were being relied upon to determine the magnitude and for continuously assessing the impact of the release of radioactive materials, as well as providing criteria for determining the need for notification and participation of local and State agencies. The failure to maintain the effectiveness of an emergency plan to meet the requirements of 10 CFR Part 50.47(b)(4) and Part 50 Appendix E, pending final determination, is identified as AV 05000424, 425/2017503, "Transposition Results in Significantly Different EAL Threshold Values".

#### 4OA6 Management Meetings (Including Exit Meeting)

On December 28, 2016, 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

T. Aiken, Assistant Maintenance Director  
S. Brown, Emergency Preparedness Supervisor  
J. Deal, Operations Training Supervisor  
T. Fowler, Chemistry Manager  
D. Komm, Operations Director  
T. Krienice, Work Management Director  
S. Kowalski, Engineer  
L. Mansfield, EP Corporate Functional Area Manager  
D. Myers, Plant Manager  
T. Simmons, Performance Improvement Manager  
D. Sutton, Regulatory Affairs Manager  
K. Taber, Site Vice President  
J. Wade, Site Design Manager  
J. Wahl, Sr. Cause Analyst  
J. Wesley, Projects Manager  
B. White, Licensing Supervisor  
M. Williams, Radiation Protection Superintendent

U. S. NRC Region II

A. Gody, Director DRS  
B. Bonser, Branch Chief  
E. Coffman, Acting Sr. Resident Inspector  
A. Alen, Resident Inspector  
C. Fontana, Emergency Preparedness Inspector  
J. Hickman, Emergency Preparedness Inspector  
S. Sanchez, Sr. Emergency Preparedness Inspector

**LIST OF REPORT ITEMS**

Opened

|                          |    |   |
|--------------------------|----|---|
| 05000424, 425/2017503-01 | AV | Transposition Results in Significantly Different EAL Threshold Values |
|--------------------------|----|---|

Closed

None

## **DOCUMENTS REVIEWED**

### **Procedures and Manuals**

NMP-EP-110, Emergency Classification Determination and Initial Action, Ver. 8.1  
NMP-EP-110-GL03, VEGP EAL's – ICs, Threshold Values and Basis  
Vogtle Electric Generating Plant Unit 1 and Unit 2 Emergency Plan, Rev. 67

### **Records and Data**

Emergency Preparedness Drill Report – July 28, 2015 Facility Activation, dated 8/28/15  
Licensing Document Change Request 2014039, Vogtle Electric Generating Plant Units 1  
& 2 Emergency Plan, Rev. 62, 50.54(q) Screening/Evaluation, dated 10/29/14  
NEI 99-01 EAL Calculations, Calculation Number X6CNA14, dated 10/15/14  
Safety Evaluation Report Related to Amendments No. 172 & 154, Enclosure 3

### **Corrective Action Program Documents**

CR 10283097, Transpositions of threshold values for EALs