



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

July 29, 2016

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

**SUBJECT: VOGTLE ELECTRIC GENERATING PLANT - NRC INTEGRATED INSPECTION  
REPORT 05000424/2016002 AND 05000425/2016002**

Dear Mr. Taber:

On June 30, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Vogtle Electric Generating Plant, Units 1 and 2. On July 14, 2016, the NRC inspectors discussed the results of this inspection with Mr. Darin Myers and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented one finding of very low safety significance (Green) in this report which involved a violation of NRC requirements. The NRC is treating this violation as a noncited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy. If you contest the violation or significance of this NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC resident inspector at Vogtle.

If you disagree with the 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 Regional Administrator, Region II; and the NRC resident inspector at Vogtle.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Shane Sandal, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

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

Enclosures: IR 05000424/2016002; 05000425/2016002  
w/Attachment: Supplemental Information

cc: Distribution via ListServ

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PUBLICLY AVAILABLE       NON-PUBLICLY AVAILABLE       SENSITIVE       NON-SENSITIVE  
 ADAMS:  Yes      ACCESSION NUMBER: ML16215A106       SUNSI REVIEW COMPLETE       FORM 665 ATTACHED

OFFICE	RII:DRP	RII:DRP	RII:DRP	RII:DRP		
SIGNATURE	VIA E-MAIL-TAS1	VIA E-MAIL	VIA E-MAIL			
NAME	T. Stephen	A. Alen-AXA1	W. Deschaine-WXD1	S. Sandal-SRS5		
DATE	7/ /2016	7/ /2016	7/ /2016	7/ /2016		8/ /2016
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

Letter to B. Keith Taber from Shane Sandal dated July 29, 2016

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT - NRC INTEGRATED INSPECTION  
REPORT 05000424/2016002 AND 05000425/2016002

Distribution w/encl:

D. Gamberoni, RII

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RidsNrrPMVogtle Resource

**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket Nos.: 50-424, 50-425

License Nos.: NPF-68, NFP-81

Report No.: 05000424/2016002; and 05000425/2016002

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Vogtle Electric Generating Plant, Units 1 and 2

Location: Waynesboro, GA 30830

Dates: April 1, 2016 through June 30, 2016

Inspectors: T. Stephen, Senior Resident Inspector (Acting)  
W. Deschaine, Senior Resident Inspector (Acting)  
A. Alen, Resident Inspector

Approved by: Shane Sandal, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000424/2016002; and 05000425/2016002, April 1, 2016, through June 30, 2016; Vogtle Electric Generating Plant, Units 1 and 2, Follow-up of Events and Notices of Enforcement Discretion

The report covered a 3-month period of inspection by resident inspectors. One self-revealing non-cited violation was identified. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP) dated April 29, 2015. The cross-cutting aspects are determined using IMC 0310, "Aspects within the Cross-Cutting Areas" dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated February 4, 2015. The NRC's program for overseeing the safe operations of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5. Documents reviewed by the inspectors which are not identified in the Report Details are identified in the List of Documents Reviewed section of the Attachment.

Cornerstone: Initiating Events

- (Green) A self-revealing non-cited violation (NCV) of Technical Specifications (TS) 5.4.1.a, Procedures, was identified for the licensee's failure to properly implement procedure 24750-2, "Steam Generator Level (Narrow Range) Protection Channel II 2L-519 Channel Operational Test and Channel Calibration." During testing of Unit 2 loop 1 steam generator (S/G) narrow range channel 2L-519 the channel was not removed from scan resulting in a reactor trip. The licensee's immediate corrective actions were to remove the technicians performing the calibration from maintenance duties for formal remediation. The licensee documented this condition in CR 10230073.

The performance deficiency (PD) was more than minor because it adversely affected the Initiating Events cornerstone objective in that the failure to properly remove channel 2L-519 from scan resulted in a reactor trip. The finding was determined to be Green because the PD did not result in a loss of mitigation equipment used to transition the reactor to a stable shutdown condition. The finding was assigned a cross cutting aspect of Avoid Complacency because maintenance technicians failed to implement appropriate error reduction tools to verify that the correct channel was removed from scan for testing. (H.12) (4OA3)

## REPORT DETAILS

### Summary of Plant Status

Unit 1 operated at or near full rated thermal power (RTP) for the entire inspection period.

Unit 2 began the report period at full RTP. The unit experienced an unplanned automatic trip on May 25, 2016 due to a low loop 1 steam generator water level (SGWL) condition. The unit returned full power on May 27, 2016, and operated at or near full RTP for the remainder of the inspection period.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

##### 1R01 Adverse Weather Protection (71111.01)

###### a. Inspection Scope

Summer Readiness of Offsite and Alternate AC Power System: The inspectors reviewed the licensee's procedures for operation and continued availability of offsite and onsite alternate AC power systems. The inspectors also reviewed the communications protocols between the transmission system operator and the licensee to verify that the appropriate information is exchanged when issues arise that could affect the offsite power system.

The inspectors reviewed the material condition of offsite and onsite alternate AC power systems (including switchyard and transformers) by performing a walkdown of the switchyard. The inspectors reviewed outstanding work orders and assessed corrective actions for degraded conditions that impacted plant risk or required compensatory actions.

###### b. Findings

No findings were identified.

##### 1R04 Equipment Alignment (71111.04)

###### a. Inspection Scope

Partial Walkdown: The inspectors verified that critical portions of the following systems were correctly aligned by performing partial walkdowns. The inspectors determined the correct system lineup by reviewing plant procedures and drawings listed in the Attachment.

- Unit 2, chemical volume control system (CVCS) centrifugal charging pump (CCP) 'A' train standby readiness alignment following restoration from planned maintenance
- Unit 1, essential chiller water system 'B' train while the 'A' train was out of service (OOS) for planned maintenance
- Diesel driven fire pumps following planned maintenance outage

Complete Walkdown: The inspectors verified the alignment of the Unit 2 residual heat removal (RHR) system by reviewing plant procedures, drawings, the updated final safety analysis report, and other documents. The inspectors also reviewed records related to the system outstanding design issues, maintenance work requests, and deficiencies.

The inspectors reviewed corrective action documents, including condition reports and outstanding work orders, to verify the licensee was identifying and resolving equipment alignment discrepancies. The inspectors also reviewed periodic reports containing information on the status of risk-significant systems, including maintenance rule reports and system health reports.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05AQ)

a. Inspection Scope

Quarterly Inspection: The inspectors evaluated the adequacy of fire plans by comparing the fire plans to the defined hazards and defense-in-depth features specified in the fire protection program the following fire areas.

- Unit 1, control building level A east and west penetration rooms, fire zones 89, 90, 159, 87, 88, 93, 102, and 158
- Unit 2, component cooling water (CCW) pump rooms, fire zones 36 and 37
- Unit 2, containment spray and RHR pump rooms, fire zones 4, 5, 9, and 10
- Main control room and technical support center, including battery room, fire zones 105, 106, 183A, 601, 602, 603, 604, and 605
- Spent fuel pool floor, fire zone 139

The inspectors assessed the following:

- control of transient combustibles and ignition sources
- fire detection systems
- water-based fire suppression systems
- gaseous fire suppression systems
- manual firefighting equipment and capability
- passive fire protection features
- compensatory measures and fire watches
- issues related to fire protection contained in the licensee's corrective action program
- material condition and operational status of fire protection equipment

Fire Drill Observation: The inspectors observed the licensee's fire brigade performance during a fire drill on April 25, 2016 and assessed the brigade's capability to meet fire protection licensing basis requirements. The inspectors observed the following aspects of fire brigade performance:

- capability of fire brigade members
- leadership ability of the brigade leader



- proper use of turnout gear and fire-fighting equipment
- team effectiveness
- compliance with site procedures

The inspectors also assessed the ability of control room operators to combat potential fires including identifying the location of the fire, dispatching the fire brigade, and sounding alarms.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program and Licensed Operator Performance (71111.11)

a. Inspection Scope

Resident Inspector Quarterly Review of Licensed Operator Regualification: The inspectors observed training simulator scenario, V-RQ-SE-14203, administered to a licensed operating crew, on May 4, 2016, in accordance with the licensee's accredited regualification training program. The inspectors assessed the following attributes:

- licensed operator performance
- the ability of the licensee to administer the scenario and evaluate the operators
- the quality of the post-scenario critique
- simulator performance

Resident Inspector Quarterly Review of Licensed Operator Performance: The inspectors observed licensed operator performance in the main control room during the May 26, 2016 restart of Unit 2 following an unplanned reactor trip. The inspectors assessed the following:

- use of plant procedures
- control board manipulations
- communications between crew members
- use and interpretation of instruments, indications, and alarms
- use of human error prevention techniques
- documentation of activities
- management and supervision

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

Regular Maintenance Effectiveness: The inspectors assessed the licensee's change from a biennial assessment to an ongoing assessment of their maintenance rule

program. The maintenance rule program assessment is required by 10 CFR 50.65(a)(3). The inspectors reviewed the licensee's implementation of the change and their assessment tools. The inspectors reviewed the licensee's assessment of several systems covered by the maintenance rule. The inspectors interviewed the maintenance rule coordinator to review the programs adherence to the guidance in NUMARC 93-01 "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants", Rev. 4A for an ongoing assessment.

Quality Control Maintenance Effectiveness: The inspectors reviewed the licensee's control of quality in accordance with their Quality Assurance Program during work on several maintenance rule scoped components. The following work packages were reviewed for proper quality controls:

- SNC 539529, S/G 1 main feedwater regulating valve air operated valve rebuild
- SNC 539528, S/G 1 main feedwater regulating valve air operated valve maintenance
- SNC 539516, S S/G 1 main feedwater regulating valve repacking
- SNC 795249, Foreign material retrieval for the Unit 2 6A feedwater heater
- SNC 777525, Unit 2 loop 1 atmospheric relief valve actuator repair

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed the maintenance activities listed below to verify that the licensee assessed and managed plant risk as required by 10 CFR 50.65(a)(4) and licensee procedures. The inspectors assessed the adequacy of the licensee's risk assessments and implementation of risk management actions. The inspectors also verified that the licensee was identifying and resolving problems with assessing and managing maintenance-related risk using the corrective action program. Additionally, for maintenance resulting from unforeseen situations, the inspectors assessed the effectiveness of the licensee's planning and control of emergent work activities.

- Unit 1, May 2, 2016, 'GREEN' equipment out of service (EOOS) risk profile following the failure of station air compressor no. 1 in conjunction with degraded conditions on air compressors no. 2 and no. 4
- Unit 2, week of May 2, 2016, 'GREEN' EOOS risk profile due to nuclear service cooling water (NSCW) pump no. 1 being out of service (OOS) for planned maintenance along with service testing of 'A' and 'C' trains battery charges
- Unit 2, May 17, 2016, 'GREEN' EOOS risk profile due to 'B' train NSCW pump no. 2 and 'B' train emergency safety features (ESF) chiller OOS
- Unit 2, May 24, 2016, 'GREEN' EOOS risk profile due to 'B' train NSCW cooling tower cleaning causing fouling of the 'B' train emergency diesel generator (EDG) jacket water heat exchanger and containment coolers no. 7 and 8
- Unit 2, May 27, 2016, 'GREEN' EOOS risk profile due to unplanned maintenance on the 6A feedwater heater

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors selected the operability determinations or functionality evaluations listed below for review based on the risk-significance of the associated components and systems. The inspectors reviewed the technical adequacy of the determinations to ensure that technical specification operability was properly justified and the components or systems remained capable of performing their design functions. To verify whether components or systems were operable, the inspectors compared the operability and design criteria in the appropriate sections of the technical specification and updated final safety analysis report to the licensee's evaluations. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with operability evaluations.

- Functionality assessment (FA) for a non-functional engine block heater on the diesel fire pump no. 1, condition report (CR) 10229293 (FA #1-15-001)
- Unit 1, immediate determination of operability (IDO) for missing hold down bolts on the ventilation cooling air supply ducts access covers of the 'A' train EDG building, CR10206003
- Unit 2, 'A' train EDG control power 'A' failure, CR10229803
- Unit 2, IDO for blocking open temperature control valve, 2TV-11675, which controls NSCW flow to the chiller condenser of the 'B' train essential chilled water system, CR10224020
- Unit 2, IDO for low flow conditions in the 'B' train of the NSCW, CR10227263
- Unit 2, prompt determination of operability (PDO) for oil content increase in the jacket water subsystem of the 'B' train EDG, CR10207224 (PDO #2-16-002)

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed licensing document change request (LDCR), i.e. Plant modification, No. 2013017, "VEGP TR 13.13.1 Functionality Temperature Guidance," version 1.0, which changed the technical support center heating, ventilating, and air conditioning (HVAC) cooling function requirements. The inspectors assessed the following:

- verified that the modifications did not affect the safety functions of important safety systems

- confirmed the modifications did not degrade the design bases, licensing bases, and performance capability of risk significant structures, systems and components
- evaluated whether system operability and availability, configuration control, post-installation test activities, and changes to documents, such as drawings, procedures, and operator training materials, complied with licensee standards and NRC requirements
- reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with modifications

b. Findings

No additional findings were identified. Findings and associated enforcement aspects of this plant modification review were documented in inspection report 05000424, 425/2016502 (Section 1EP4).

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors either observed post-maintenance testing or reviewed the test results for the maintenance activities listed below to verify the work performed was completed correctly and the test activities were adequate to verify system operability and functional capability.

- SNC539528, S/G 1 main feedwater regulating valve air operated valve maintenance, March 13, 2016
- SNC396950, Check valve from reactor makeup water to boric acid blend, March 16, 2016
- SNC777525, Unit 2 loop 1 atmospheric relief valve Actuator repair, April 3, 2016
- SNC779920, 1N41 power range instrument J352 connector repair, April 5, 2016
- SNC 480312, Nitrogen charging and air pump regulator adjustment of main feed isolation valve, 1HV-5228, May 6, 2016
- SNC 541720, 36-Month NSCW-ESF water chiller flow channel, 2F-1803, May 17, 2016

The inspectors evaluated these activities for the following:

- Acceptance criteria were clear and demonstrated operational readiness
- Effects of testing on the plant were adequately addressed
- Test instrumentation was appropriate
- Tests were performed in accordance with approved procedures
- Equipment was returned to its operational status following testing
- Test documentation was properly evaluated

Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with post-maintenance testing.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)a. Inspection Scope

The inspectors reviewed the surveillance tests listed below. The surveillance test was either observed directly or test results were reviewed to verify testing activities and results provide objective evidence that the affected equipment remain capable of performing their intended safety functions and maintain their operational readiness consistent with the facility's current licensing basis. The inspectors evaluated the test activities to assess for:

- preconditioning of equipment,
- appropriate acceptance criteria,
- calibration and appropriateness of measuring and test equipment,
- procedure adherence, and
- equipment alignment following completion of the surveillance

Additionally, the inspectors reviewed a sample of significant surveillance testing problems documented in the licensee's corrective action program to verify the licensee was identifying and correcting any testing problems associated with surveillance testing.

Routine Surveillance Tests

- 14460-2, Emergency Core Cooling System Flow Path Verification, version 38.1
- 14951-C, Fire Suppression System Operability Tests (Section 1.3 – Diesel Fire Pump #2 C-2301-P4-003) Monthly Test, version 32
- 14721C-2, ECCS subsystem flow balance, version 5

In-Service Tests (IST)

- 14825-2, Quarterly In-service Valve Test, version 94.2 (procedure section for steam generator no. 2 atmospheric relief valve PV-3010)

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)a. Inspection Scope

The inspectors observed training evolution V-RQ-SE-16202, designated as an emergency preparedness performance indicator data collection exercise (i.e. DEP and ERO), conducted on May 9, 2016. The inspectors observed licensee activities in the simulator to evaluate implementation of the emergency plan, including event classification and notification. The inspectors evaluated the licensee's performance against criteria established in the licensee's procedures. Additionally, the inspectors attended the post-exercise critique to assess the licensee's effectiveness in identifying emergency preparedness weaknesses and verified the identified weaknesses were entered in the corrective action program.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES4OA1 Performance Indicator Verification (71151)a. Inspection Scope

The inspectors verified that the PI data complied with guidance contained in Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," and licensee procedures. The inspectors verified the accuracy of reported data that were used to calculate the value of each PI.

Cornerstone: Barrier Integrity

- reactor coolant system leak rate (both units)
- reactor coolant system specific activity (both units)

The inspectors reviewed a sample of the performance indicator (PI) data, submitted by the licensee, for these PIs. The inspectors reviewed plant records compiled between April 2015 and March 2016 to verify the accuracy and completeness of the data reported for the station. In addition, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with PI data.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152).1 Routine Review

The inspectors screened items entered into the licensee's corrective action program in order to identify repetitive equipment failures or specific human performance issues for follow-up. The inspectors reviewed condition reports, attended screening meetings, or accessed the licensee's computerized corrective action database.

.2 Semi-Annual Trend Reviewa. Inspection Scope

The inspectors reviewed issues entered in the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on the increasing trends of oil/grease in the jacket water system of the Unit 2 'B' train EDG, but also considered the results of inspector daily condition report screenings, licensee trending efforts, and licensee human performance results. The review nominally considered the 6-month period of either January 2016 through June 2016, although some examples extended beyond those dates when the scope of the trend warranted. The inspectors compared

their results with the licensee's analysis of trends. Additionally, the inspectors reviewed the adequacy of corrective actions associated with a sample of the issues identified in the licensee's trend reports. The inspectors also reviewed corrective action documents that were processed by the licensee to identify potential adverse trends in the condition of structures, systems, and/or components as evidenced by acceptance of long-standing non-conforming or degraded conditions.

b. Findings and Observations

No findings were identified.

.3 Annual Follow-Up of Selected Issues

a. Inspection Scope

The inspectors conducted a detailed review of corrective action report (CAR) 264166, "Improper Steam Dump Operation during the Unit 2 startup on March 28, 2016." The inspectors evaluated the following attributes of the licensee's actions:

- complete and accurate identification of the problem in a timely manner
- evaluation and disposition of operability and reportability issues
- consideration of extent of condition, generic implications, common cause, and previous occurrences
- classification and prioritization of the problem
- identification of root and contributing causes of the problem
- identification of any additional condition reports
- completion of corrective actions in a timely manner

b. Findings

No findings were identified.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion

Unit 2 Automatic Reactor Trip

a. Inspection Scope

The licensee experienced an unplanned automatic reactor trip of Unit 2 on May 25, 2016. The automatic reactor trip was caused by low water level condition on the loop 1 S/G. The inspectors verified the licensee's trip response actions were in accordance with procedures. The inspectors reviewed the unit's response to the low water level condition to verify it was consistent to that described in the licensee's safety analysis. The inspectors attended the licensee's restart Plant Review Board that was conducted to verify the unit would be allowed to be restarted in accordance with procedures. The inspectors reviewed the licensee's Human Performance Review Board results and the Reactor Trip Review report.

b. Findings

Introduction: A Green self-revealing non-cited violation (NCV) of TS 5.4.1.a, Procedures, was identified for the licensee's failure to properly implement procedure 24750-2, "Steam Generator Level (Narrow Range) Protection Channel II 2L-519 Channel Operational Test and Channel Calibration", Ver. 23, during testing of the Unit 2 loop 1 S/G narrow range channel 2L-519.

Description: The licensee was performing a planned Unit 2 Loop 1 S/G narrow range protection channel operational test and calibration using procedure 24750-2 "Steam Generator Level (Narrow Range) Protection Channel II 2L-519 Channel Operational test and Channel Calibration", Ver. 23. The channel being tested would be "removed from scan" which locked the steam generator water level at the current water level value regardless of the test or actual input. However, the averaging circuit was removed from scan instead of the channel being tested. This error locked in a S/G water level that was above the program level causing a reduction in main feedwater flow to the S/G. S/G water level decreased until it reached the low water level reactor trip setpoint. The licensee responded per their reactor trip procedures and stabilized the plant.

Analysis: The failure to properly implement procedure 24750-2 as required by TS 5.4.1.a. is a performance deficiency (PD). The performance deficiency was more than minor because it adversely affected the Initiating Events cornerstone objective in that failure to properly remove channel 2L-519 resulted in a reactor trip. The finding was screened using IMC 0609, Appendix A, dated June 19, 2012. The finding was determined to be Green using Exhibit 1, Initiating Events, Transient Initiators, because the PD did not result in a loss of mitigation equipment used to transition the reactor to a stable shutdown condition. The finding was assigned a cross cutting aspect of Avoid Complacency because maintenance technicians failed to implement appropriate error reduction tools to verify that the correct channel was removed from scan for testing. (H.12)

Enforcement: Technical Specification 5.4.1.a required, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulation Guide 1.33, Rev. 2, Appendix A, February 1978. Regulation Guide 1.33, Appendix A, Section 9.a. recommended written procedures for performing maintenance that can affect the performance of safety-related equipment. Procedure 24750-2 "Steam Generator Level (Narrow Range) Protection Channel II 2L-519 Channel Operational test and Channel Calibration" for the testing of the Unit 2 Loop 1 Steam Generator (S/G) narrow range channel 2L-519" required, in part, that point LY-519 be removed from scan. Contrary to the above, on May 25, 2016, licensee removed the Unit 2 Loop 1 averaging circuit from scan instead of channel 2L-519, resulting in a reactor trip. The licensee's immediate corrective actions were to remove the technicians performing the calibration from maintenance duties for formal remediation. The licensee documented this condition and the corrective actions in CR 10230073. This violation is being treated as an NCV in accordance with section 2.3.2.a of the Enforcement policy: NCV 05000425/2016002-01, "Failure to properly implement a maintenance procedure caused a reactor trip."



#### 4OA5 Other Activities

##### Operation of an Independent Spent Fuel Storage Installation (ISFSI) (60855.1)

###### a. Inspection Scope

The inspectors performed a walkdown of the onsite ISFSI. The inspectors reviewed surveillance records to verify that daily surveillance requirements were performed as required by technical specifications.

###### b. Findings

No findings were identified.

#### 4OA6 Meetings, Including Exit

On July 14, 2016, the resident inspectors presented the inspection results to Darin Myers and other members of the licensee's staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection period.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee personnel:

T. Baker, Security Manager  
S. Briggs, Operations Director  
J. Crites, Maintenance Rule Coordinator  
J. Dixon, Radiation Protection Manager  
T. Fowler, Chemistry Manager  
G. Gunn, Licensing Manager  
S. Harris, Operations Manager  
D. Komm, Work Management Director  
D. Myers, Plant Manager  
D. Stiles, Training Director  
T. Baker, Security Manager  
J. Summy, Engineering Director  
D. Myers, Plant Manager  
K. Taber, Site Vice-President  
K. Walden, Licensing Engineer  
I. White, Licensing Engineer

### **LIST OF REPORT ITEMS**

#### Opened and Closed

NCV 05000425/2016002-01

Failure to properly implement a maintenance procedure caused a Reactor Trip (Section 4OA3)

### **LIST OF DOCUMENTS REVIEWED**

#### **Section 1R01: Adverse Weather Protection**

##### Procedures

10029-C, NERC/SERC Standards for Generator Operators, Ver. 3  
18017-C, Abnormal Grid Disturbances/Loss of Grid, Ver. 9.6  
NMP-AD-014-GL01, Guidelines for Compliance with NERC Standards, Ver. 6.0  
NMP-AD-014-002, NUC-001 Nuclear Plant Interface Coordination for Southern Nuclear Company, Ver. 4.0  
14230-1, Offsite A.C. Circuit Verification and Capacity/Capability Evaluation, Ver. 26

##### Other

Site Certification Letter for Summer Readiness dated May 9, 2016  
CRs 749961, 780387

**Section 1R04: Equipment Alignment**Drawings

2X4DB122 Rev. 54.0, P&I Residual Heat Removal System, System No. 1205

1X4DB116-2 Ver. 37.0, P&I Diagram – Chemical & Volume Control System, System No. 1208

Procedures

13744B-1 Ver. 12.2, Train B Essential Chilled Water System

13903-C, Fire Protection System Operation

Other

Tagout: 1-DT-16-1208-00064

Clearance: 1-DT-16: Tagout: 1-DT-16-1592-00094

System Description – Fire Protection dated 9/11/2015

System Health Report: Vogtle Residual Heat Removal System No. 1205: 2015 QTRs 1 – 4 and 2016 QTR 1

Corrosion Assessment No. 1205-2010-006, Ver. 2.0

Corrosion Assessment No. 1205-2013-002, Ver. 2.0

CR list for RHR System (System No. 1205) ranging from 1/1/15 thru 6/20/16

**Section 1R05: Fire Protection Annual/Quarterly**Procedures

92789-1 Rev. 2.1, Zone 89 – Control Building Level A Fire Fighting Preplan

92790-1 Rev. 2.2, Zone 90 – Control Building Level A Fire Fighting Preplan

92859-1 Rev. 2.2, Zone 159 – Control Building Level A Fire Fighting Preplan

92787-1 Rev. 2.2, Zone 87 – Control Building Level A Fire Fighting Preplan

92788-1 Rev. 2.2, Zone 88 – Control Building Level A Fire Fighting Preplan

92793-1 Rev. 3.2, Zone 93 – Control Building Level A

92802-1 Rev. 1.2, Zone 102 – Control Building – Level A Fire Fighting Preplan

92858-1 Rev. 2.2, Zone 158 – Control Building Level A Fire Fighting Preplan

92737-2 Rev. 3.0, Zone 37 – Auxiliary Building – Level A, CCW Pumps, Train “B” Fire Fighting Plan

92736-2 Rev. 5.0, Zone 36 – Auxiliary Building – Level A, CCW Pumps, Train A Fire Fighting Plan

92805-2 Rev. 5, Zone 105 – Control Building – Level 1 Fire Fighting Preplan

92806-1 Rev. 2.2, Zone 106 – Control Building – Level 1 Fire Fighting Preplan

92883A-1 Rev. 1.2, Zone 183A – Control Building – Level 1 Fire Fighting Preplan

92921-1 Rev. 2.2, Zone 601 – Technical Support Center Fire Fighting Preplan

92922-1 Rev. 3.1, Zone 602 Technical Support Center Fire Fighting Preplan

92923-1 Rev. 1.2, Zone 603 Technical Support Center Electrical Equipment Room Fire Fighting Preplan

92924-1 Rev. 2.2, Zone 604 Technical Support Center Battery Room Fire Fighting Preplan

92925-1 Rev. 2.2, Zone 605 TSC Control Building Level 1 Fire Fighting Preplan

92704-2 Rev. 2.0, Zone 4 – Auxiliary Building – Level D, Containment Spray Pump “A” Fire Fighting Preplan

92705-2 Rev. 3.0, Zone 5 – Auxiliary Building – Level D, Containment Spray Pump “B” Fire Fighting Preplan

92709-2 Rev. 2.2, Zone 9 – Auxiliary Building – Level D Fire Fighting Preplan

92839-1 Rev. 3.0, Zone 139 – Fuel Handling Building – Level 1 Fire Fighting Preplan

Other

NMP-TR-425-F02, Drill Exercise Completion Sheet dated 4/25/2016

**Section 1R11: Licensed Operator Requalification Program and Licensed Operator Performance**

Procedures

NMP-EP-110 Ver. 8.1, Emergency Classification Determination and Initial Action

NMP-EP-110-GL03 Ver. 5.2, VEGP EALs – ICs, Thresholds Values and Basis

NMP-EP-111 Ver. 11.0, Emergency Notifications

**Section 1R12: Maintenance Effectiveness**

Work Orders

SNC 539529 S/G 1 Main Feedwater Regulating Valve Air Operated Valve rebuild

SNC 539528 S/G 1 Main Feedwater Regulating Valve Air Operated Valve maintenance

SNC 539516 S/G 1 Main Feedwater Regulating Valve repacking

SNC 795249 Foreign Material Retrieval for the Unit 2 6A Feedwater Heater

SNC 777525 Unit 2 Loop 1 Atmospheric Relief Valve actuator repair

Other

NUMARC 93-01, Rev. 4A, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants

Maintenance Rule Expert Panel Meeting Minutes from April 26, 2016

NMP-ES-027, Ver. 4.0, Maintenance Rule Program

Vogtle Quality Assurance Technical Report (QATR), Rev. 12

CR 10202079, 10203906, 10236360, 10202092, 10202097, 10202669, 10205164

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

Procedures

NMP-GM-31-001, Ver. 3.0, Online Maintenance Rule (a)(4) Risk Calculations

NMP-DP-001-GL01, Ver. 9.4, Risk Assessment Worksheets

Other

Unit 2 Narrative Logs for the week of May 2, 2016; May 17, 2016; May 23, 2016; June 6, 2016 and June 13, 2016

Unit 2 EOOS profile for the week of May 2, 2016; May 17, 2016; May 23, 2016; June 6, 2016 and June 13, 2016

Unit 1 EOOS risk profile for week of May 2, 2016

CRs 10216596, 10217069, 10227263

CAR 265365

Work week plan for the week of May 23, 2016

### **Section 1R15: Operability Determination and Functionality Assessments**

#### Procedures

13744B-2, Ver. 12, Train B Essential Chilled Water System

17035-2, Ver. 34, Annunciator Response Procedures for ALB 35 on EAB Panel

#### Drawings

2X4DB135-2, Rev. XX, PI&D – Nuclear Service Water System – System No. 1202

1X4AK01-046-18, Rev. W, Unit 2 EDG A Engine Control Panel Schematic

2X3D-BH-G03C, Ver. 7.0, Elementary Diagram Diesel Engine Control – Generator DG2A

2X3D-BH-G03D, Ver. 8.0, Elementary Diagram Diesel Engine Control – Generator DG2A

2X4AK01-00361, Ver. 12.0, Engine Control Panel Schematic Sheet 1 of 13

2X4AK01-00362, Rev. 13, Engine Control Panel Schematic

2X4AK01-00364, Ver. 17.0, Engine Control Panel Schematic

2X4AK01-00363, Ver. 17.0, Engine Control Panel Schematic

#### Other

UFSAR Section 9.2.9.1, Essential Chilled Water System

Anton, Brandt, NALCO Water Co., letter to Jeff Waites and Nin Travljanin, Southern Nuclear Plant Vogtle, May 24, 2016

Functionality Assessment #1-15-001

VTM CX4AF14-00019, Ver. 10, Fire Protection Pump Drive Industrial Engines – Operation, Maintenance Manual, and Parts Catalog

VTM AX4AJ04-20000, Ver. 7.0, Installation, Operation and Maintenance – Manual ESF Chillers

CRs 10224020, 10227263, 10229803, 10229821, 10206003, 10207224, 10229293

### **Section 1R19: Post Maintenance Testing**

#### Work Orders

SNC 539528, S/G 1 Main Feedwater Regulating Valve Air Operated Valve maintenance

SNC 777525, Unit 2 Loop 1 Atmospheric Relief Valve actuator repair

SNC 541720, 36 Month NSCW-ESF Water Chiller Flow Channel (2F-1803), May 17, 2016

SNC396950, Check valve from reactor makeup water to boric acid blend (CVCS), March 16, 2016

SNC779920, 1N41 power range instrument J352 connector repair, April 5, 2016

SNC752096, 12-week calibration of 1N41, April 7, 2016

SNC 480312, Nitrogen charging and air pump regulator adjustment for main feed isolation valve, 1HV-5228, May 6, 2016

#### Procedures

26852-C, Ver. 17, Main Feedwater Isolation Valve Nitrogen Charge and Oil Level Checks  
 24361-2, NSCW, ESF Water Chiller 2F-1803 Channel Calibration, Rev, 11.1  
 24700-1, Ver. 60, Nuclear Instrumentation System Power Range Channel 1N41 Channel Calibration

#### Drawings

AX4AR19-00037, Ver. 1.0, Schematic for Anchor/Darling Self-Contained Hydraulic Actuator

CRs 10224223, 10206098, 10218905

### **Section 1R22: Surveillance Testing**

#### Completed Procedures

14460-2, Ver. 38.1, ECCS Flow Path Verification  
 14721C-2, ECCS subsystem flow balance, Completed on March 11, 2016  
 14825-2, Quarterly Inservice Valve Test, Version 94.2  
 14951-C, Ver. 32, Fire Suppression System Operability Tests (Section 1.3 – Diesel Fire Pump #2 C-2301-P4-003) Monthly Test, Completed on April 18, 2016

#### Procedures

24306-2, Ver. 7, Safety Injection Pump 2-1204-P6-003 Discharge Flow 2F-918 Channel Calibration  
 24307-2, Ver. 7, Safety Injection Pump 2-1204-P6-004 Discharge Flow 2F-922 Channel Calibration  
 24328-2, Ver. 20, Low Head Safety Injection Flow 2F-618 Channel Calibration  
 Work Order SNC609420, ECCS flow balance, March 10, 2016

#### Drawings

1X4DB159-2, Ver. 33.0 P&I Diagram Main Steam System, System No. 1301  
 2X4DB116-1, Rev. 49, P&I Diagram – Chemical & Control Volume System – System 1208  
 2X4DB119, Rev. 27, P&I Diagram – Safety Injection System – System 1204  
 2X4DB120, Rev. 29, P&I Diagram – Safety Injection System – System 1204  
 2X4DB121, Rev. 50, P&I Diagram – Safety Injection System – System 1204  
 2X4DB122, Rev. 54, P&I Diagram – Residual Heat Removal System – System 1205  
 AX3D-AA-F06B, One Line Diagram – 480V MCC ANBK – A-1805-S3-NBG, Ver. 5.0  
 AX3D-AA-F10A, One Line Diagram – 480V MCC ANBK – A-1805-S3-NBK, Ver. 15.0  
 CX3D-CE-887D, Wiring Diagram – Aux Sys Fire Prot. Water Sys C-2301-P5-FP2, Rev. 5.0  
 CX4DB713-1, P&I Diagram – Fire Protection Pump House No. 1 and 2, System 2301, Ver. 43.0

Other

2X5DZ000618, Ver. 1.0, Low Head Safety Injection Flow Train A 2F-618 Scaling Document

2X5DZ000619, Ver. 1.0, Low Head Safety Injection Flow Train A 2F-619 Scaling Document

2X5DZ000918, Ver. 1.0, Safety Injection Pump Train A Discharge Flow 2F-918 Scaling Document

2X5DZ000922, Ver. 1.0, Safety Injection Pump Train B Discharge Flow 2F-922 Scaling Document

ASME OM Code-2001, Code for Operation and Maintenance of Nuclear Power Plants

B. J. George, Southern Nuclear Plant Vogtle, letter to U. S. Nuclear Regulatory Commission, "Vogtle Electric Generating Plant Third Interval Inservice Testing (IST) Program Update," April 16, 2007

Clearance: 1-DT-16 : Tagout: 1-DT-16-2301-00068

U.S. Nuclear Regulatory Commission, "Guidelines for Inservice Testing at Nuclear Power Plants: Inservice Testing of Pumps and Valves and Inservice Examination and Testing of Dynamic Restraints (Snubbers) at Nuclear Power Plants — Final Report," NUREG-1482, Revision 2, October 2013

CR 10210388

**Section 1EP06: Drill Evaluation**Procedures

NMP-EP-110, Ver. 8.1, Emergency Classification Determination and Initial Action

NMP-EP-110-GL03, Ver. 5.2, VEGP EALs – ICs, Thresholds Values and Basis

NMP-EP-111, Ver. 11.0, Emergency Notifications

Other

V-RQ-SE-16202, Simulator Exercise Guide

**Section 4OA1: Problem Identification and Resolution**Procedures

00163-C, Rev. 14.6, NRC Performance Indicator and Monthly Operating Report Preparation and Submittal

Other

NEI 99-02, Rev. 7, Regulatory Assessment Indicator Guideline

**Section 4OA2: Problem Identification and Resolution**

Apparent Cause Determination Report for CAR 264166, Ver. 1.0

T.S. 3.4.1, Amendment 74, RCS Pressure, Temperature, and flow; Departure from Nucleate Boiling (DNB) Limits

T.S. 3.4.1, Basis, Amendment 74; RCS Pressure, Temperature, and flow; Departure from Nucleate Boiling (DNB) Limits

CR 10161039, 10178099, 10154763, 10177067, 10176964, 10231698, 10238423

TE949569, Track and trend of 2B EDG oil and grease content in jacket water

**Section 4OA2: Follow-Up of Events and Notices of Enforcement Discretion****Procedures**

24750-2, Ver. 23, Steam Generator Level (Narrow Range) Protection Channel II 2L-519  
Channel Operational Test and Channel Calibration  
23505-C, Ver. 3, Ovation Digital Feed Water System Maintenance  
17013-2, Ver. 29.4, Annunciator Response Procedures for ALB 13 on Panel 2B1 on MCB  
18016-C, Ver. 30, Condensate and F/W Malfunction  
18001-C, Ver. 36, Systems Instrumentation Malfunction  
12003-C, Ver. 59, Reactor Startup (Mode 3 to Mode 2)  
NMP-OS-007, Ver. 11, Conduct of Operations

**Other**

10006-C, Ver. 29.2, Reactor Trip Review for the Unit 2 Trip that occurred on May 25, 2016  
Operator logs from May 24-26, 2016  
Root Cause Charter for CAR 265328  
Human Performance Review Board Summary for CR 10227856  
CR 10227856  
NMP-GM-009-F01, Ver. 6.0, Restart PRB Review for the Unit 2 Trip that occurred on May 25,  
2016

**Section 4OA5: Other Activities****Other**

VEGP 10 CFR 72.212 Report, Version 2  
VEGP Certificate of Compliance, Amendment 9  
VEGP ISFSI FSAR, Rev. 12