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

November 13, 2019

Mr. Michael Yox
Regulatory Affairs Director
Southern Nuclear Operating Company
Vogtle 3 & 4
7835 River Road, Bldg. 140
Waynesboro, GA 30830

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT UNITS 3 AND 4 – U.S. NUCLEAR REGULATORY COMMISSION SECURITY BASELINE INSPECTION REPORT 05200025/2019402 AND 05200026/2019402

Dear Mr. Yox:

On September 30, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at you Vogtle Electric Generating Plant, Units 3 and 4. The enclosed inspection report documents the inspection results, which the inspectors discussed on October 16, 2019 with Mr. M. Meier, Southern Nuclear Company (SNC) Vice President of Regulatory Affairs, and other members of your staff.

The inspection examined a sample of construction activities conducted under your Combined License (COL) as it relates to safety and compliance with the Commission's rules and regulations and with the conditions of these documents. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any), will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system ADAMS. ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Should you have any questions concerning this letter, please contact us.

Sincerely,

***/RA/***

Steven D. Rose, Branch Chief
Construction Inspection Branch 2
Division of Construction Oversight

Docket Nos.: 5200025, 5200026
License Nos: NPF-91, NPF-92

Enclosure:
NRC Inspection Report (IR) 05200025/2019402,
05200026/2019402

cc: w/attachment: Supplemental Information

Southern Nuclear Operating Company
Document Control Coordinator
42 Inverness Center Parkway, Bin 237
Birmingham, AL 35242

Resident Inspector
Vogtle Plant Units 3 & 4
8805 River Road
Waynesboro, GA 30830

Brian H. Whitley
3535 Colonnade Parkway, Bin N-226-EC
42 Inverness Center Parkway, BIN B237
Birmingham, AL 35243

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**U.S. NUCLEAR REGULATORY COMMISSION**
**Region II**

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|---|---|
| Docket Numbers: | 5200025<br>5200026 |
| License Numbers: | NPF-91<br>NPF-92 |
| Report Numbers: | 05200025/2019402 and 05200026/2019402 |
| Licensee: | Southern Nuclear Operating Company, Inc. |
| Facility: | Vogtle Electric Generating Plant, Units 3 and 4 |
| Location: | Waynesboro, GA 30830 |
| Inspection Dates: | July 1, 2019 through September 30, 2019 |
| Inspectors: | B. Kemker, Senior Resident Inspector, Division of Construction Oversight (DCO)<br>N. Karlovich, Resident Inspector, DCO |
| Approved by: | Steven D. Rose, Branch Chief<br>Construction Inspection Branch 2 |

## SUMMARY O F FINDINGS

Inspection Report (IR) 05200025/2019402, 05200026/2019402; 07/01/2019 through 09/30/2019; Vogtle Unit 3 and 4, security inspection report.

This report covers a three-month period of announced security inspections performed by the resident inspectors. The NRC's program for overseeing the safe construction of commercial nuclear power reactors is described in Inspection Manual Chapter (IMC) 2506, Construction Reactor Oversight Process General Guidance and Basis Document.

### A. NRC-Identified and Self Revealed Findings

None

### B. Licensee-Identified Violations

None

## REPORT DETAILS

## 1. CONSTRUCTION REACTOR SAFETY

### Cornerstones: Design/Engineering, Procurement/Fabrication, Construction/Installation, Inspection/Testing

IMC 2503, Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) - Related Work Inspections

1A01 (Unit 3) ITAAC Number C.2.6.09.05a (664) / Family 17A
(Unit 4) ITAAC Number C.2.6.09.05a (664) / Family 17A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number C.2.6.09.05a (664). The inspectors used the following NRC Inspection Procedures (IPs)/sections to perform this inspection:

- 65001.17-02.08-Vehicle Control Measures

The inspectors performed an inspection to verify active vehicle barriers at two locations were constructed, installed and secured in place in accordance with the design specifications to satisfy the ITAAC requirement, Title10 of the *Code of Federal Regulations* (10 CFR) 73.55(e)(3), and 10 CFR 73.55(e)(10).

The inspectors reviewed the design specification for the active vehicle barrier system and associated drawings to identify the requirements for installation of the active vehicle barriers. During this inspection period, the inspectors observed the physical installation and reviewed installation records for the barriers at the primary vehicle access portal on the south side of Unit 3 and reviewed installation records for the barriers at the warehouse on the north side of Unit 3.

At the north primary vehicle access portal, the inspectors performed in-field measurements of installed reinforcing steel prior to concrete placement to verify it was the correct size; met spacing requirements; had minimum concrete clear cover; lap splices met the minimum length; and the foundation had the required depth and thickness in accordance with design drawings, specifications SV0-SES-Z0-800001 and SV0-CR01-Z0-002, and American Concrete Institute (ACI) 318-08. The inspectors independently assessed the placement area prior to concrete placement to determine whether it was secure, leak tight, and free from debris or excess water as required by SV0-CR01-Z0-002 and ACI 318-08. The inspectors reviewed the concrete placement plan included in the work package to determine whether pre-placement planning had been completed, including considerations for weather, mass concrete, and unexpected events.

At the south primary vehicle access portal, the inspectors observed concrete placement activities for both wedge gates to determine whether approved work instructions, procedures, and specifications were available in the work area and were followed throughout the concrete placement as required by the licensee's quality assurance program. The inspectors observed concrete placement activities to verify placement drop distances did not exceed requirements and determine whether consolidation using vibrators was adequately performed to prevent mix segregation as specified in SV0-CR01-Z0-002, ACI 318-08, and ACI 309R-05. The inspectors observed the concrete truck in use during the placements to verify the time interval between mixing and placing was less than 90 minutes in accordance with SV0-CR01-Z0-002 and ASTM C94-18. The inspectors observed the concrete in the concrete trucks and at the point of placement to verify it was uniformly mixed in accordance with SV0-CR01-Z0-002, ACI 318-08, and American Society for Testing and Materials (ASTM) C94-18. The inspectors evaluated the batch tickets to determine whether each batch ticket was reviewed for transport time and truck rotations, verification of proper mix, and placement location in accordance with SV0-CR01-Z0-002, ACI 318-08, and ASTM C94-18.

For both vehicle access portals, the inspectors reviewed the completed batch tickets and test reports, including the concrete cylinder strength testing, to verify the records were complete and contained the required information in accordance with SV0-SES-Z0-800001, SV0-CR01-Z0-002, ACI 318-08, and the applicable ASTM standards. Additionally, the inspectors reviewed the concrete cylinder break test results to verify the concrete tested met the strength requirements for the specified concrete mix in accordance with specification SV0-SES-Z0-800001.

For both vehicle access portals, the inspectors performed independent inspection and measurements of the as-built concrete, including finishes and dimensions, to determine whether the as-built configurations were in accordance with SV0-SES-Z0-800001, SV0-CR01-Z0-002, ACI 318-08, and the work packages. The inspectors reviewed the completed work packages for deviations or nonconformances to verify the licensee's corrective actions and disposition of any deviations and nonconformances were in accordance with the licensee's quality assurance and corrective action programs.

b. Findings

No findings were identified.

1A02 (Unit 3) ITAAC Number C.2.6.09.08a (668) / Family 17A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number C.2.6.09.08a (668). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.17-02.02-Vital Areas/Vital Area Barriers

The inspectors performed an inspection to determine if the openings in Vogtle Unit 3 vital area (VA) barriers for heating, ventilation, and cooling (HVAC) system vents were secured to prevent exploitation of the openings to satisfy the ITAAC requirement and 10 CFR 73.55(e)(4).
The inspectors reviewed the design specifications and associated drawings to identify designated HVAC system openings through VA barriers and the way they will be secured and monitored. The inspectors examined the physical installation of the barriers at nine HVAC system openings (SV3-VTS-AS-16, SV3-VTS-AS-17, SV3-VTS-AS-18, SV3-VXS-AS-06, SV3-VXS-AS-08, SV3-VXS-AS-09, SV3-VBS-AS-03, SV3-VBS-AS-22, and SV3-VBS-AS-23) to the VA during this inspection period. The inspectors performed direct observation inspections of the openings to determine if they were secured in a manner that would delay or prevent exploitation. Specifically, the inspectors directly inspected the barrier, locking mechanisms, welds, bolts, etc., associated with the openings.

In addition, the inspectors reviewed the design specification and associated drawing for the HVAC system duct enclosure plate at wall MK W129 in the annex building and the way it was secured. The inspectors examined the physical installation of the enclosure plate to verify, through direct observation and measurements, if the enclosure plate met the design details and was securely mounted to the wall in a manner that delays or prevents exploitation.

b. Findings

No findings were identified.

## 4. OTHER INSPECTION RESULTS

4OA6 Meetings, Including Exit

.1 Exit Meeting.

On October 16, 2019, the inspectors presented the inspection results to Mr. M. Meier, SNC Vice President of Regulatory Affairs, and other licensee and contractor staff members. Proprietary information was reviewed during the inspection period but was not included in the inspection report.

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

Licensees and Contractor Personnel

R. Beilke, ITAAC Project Manager
B. Bennett, Security Supervisor

### LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

None

### LIST OF DOCUMENTS REVIEWED

**Section** 1A01
SV0-SES-Z0-800001, "Specification for Active Vehicle Barrier System," Revision 1
SV0-CR01-Z0-002, "Placing Concrete and Reinforcing Steel," Revision 5
WPS-6360-WP-17-C006, "Excavate Wedge Gate Foundation and Install Wedge Gate Permanent Security System Zone 17," Revision 0
WPS-6360-WP-C022, "Excavate Wedge Gate Foundation and Install Wedge Gate Permanent Security System Zone 16," Revision 0
Concrete Placement/Order Pour Card, Pour Number 8084, 2/8/19
Concrete/Grout Delivery Ticket #78175, Load #1, 2/8/19
2019VEGP8084, "Wood Report of Concrete Compression Test Results," 3/13/19
CR 50025272, "Primary Vehicle Access Point North Side Wedge Gate Concrete Pour Work Package Requirement Not Followed"
CR 50026686, "NRC Questions Concerning Concrete Placement at VAPs"
Williams Plant Services AR-2019-0045, "Procedure Noncompliance Noted during Concrete Placement"
Concrete Placement/Order Pour Card, Pour Number 54032, 7/19/19
Concrete/Grout Delivery Ticket #54032, Load #1, 7/19/19
Engineering Service Request 50026665, "Concrete for Wedge Gate Specification Change"
Nonconformance and Disposition Report SV0-CC01-GNR-000183, "Approval of North Wedge Gate Pour at PVAP (ESR 50026101)," Revision 0
Nonconformance and Disposition Report SV0-CC01-GNR-000184, "Concrete for Wedge Gate at FEP 17 Specification Change (ESR 50026903)," Revision 0
Nonconformance and Disposition Report SV0-CC01-GEF-000105, "Concrete Deviation SV0-SES-Z0-800001," Revision 0

**Section** 1A02
APP-VXS-MD-511, "HVAC Layout VXS Supply Duct Annex Building Area 1 EL 135'-3"," Revision 3

APP-VBS-MD-504, “HVAC Layout VBS Exhaust and Return Duct (CSA) Isometric Annex Building Area 1 El 135’3”,” Revision 3
APP-VXS-MD-430, "Auxiliary Building Area 3 Elevation 117'6" VXS Duct Layout," Revision 6
APP-VBS-MD-903, "VBS Duct Layout Auxiliary Building Area 1 & 2 Sections," Revision 7
APP-VTS-MD-011, "HVAC System Partial Plan Views VTS Supply/Intake Duct Layout Turbine Building First Bay Area 1 El. 117'-6"," Revision 2
APP-VTS-MD-071, "HVAC System Partial Plan Views VTS Exhaust Duct Layout Turbine Building First Bay Area 1 El. 135'-3"," Revision 2
APP-AB01-AB-010, "Blockouts and Barriers (Penetrations, Seals and Fire Stops) Details Sheet 10," Revision 4
APP-AB01-AB-012, "Blockouts and Barriers (Penetrations, Seals and Fire Stops) Details Sheet 12," Revision 0
APP-AS21-Z0D-101, "AS21 HVAC Data Sheet," Revision 0
APP-AS21-A1-001, "AP1000 Security Barrier Design Requirements," Revision 1
APP-GW-MD-103, "HVAC Details Sheet 1," Revision 1
APP-SES-GEF-031, "Updates to Barrier Matrix," Revision 0
APP-SES-Z0C-002, "CAS & SAS Bullet Resistant Assessment," Revision 2
APP-4031-SA-001, "Annex Building – Area 1 HVAC Duct Enclosure, "Revision 2
CR 50020936, "Security Device Hold Point Bypassed"

## LIST OF ACRONYMS

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|---|---|
| 10 CFR | Title 10 of the Code of Federal Regulations |
| ACI | American Concrete Institute |
| ADAMS | Agencywide Documentation Access and Management System |
| ASTM | American Society for Testing and Materials |
| COL | Combined License |
| DCO | Division of Construction Oversight |
| HVAC | Heating, Ventilation, and Cooling System |
| IMC | Inspection Manual Chapter |
| IP | Inspection Procedure |
| IR | Inspection Report |
| ITAAC | Inspections, Tests, Analyses, and Acceptance Criteria |
| NRC | Nuclear Regulatory Commission |
| PARs | Publicly Available Records |
| SNC | Southern Nuclear Company |
| VA | Vital Area |

**ITAAC INSPECTED**

| No. | ITAAC No. | Design Commitment | Inspections, Tests, Analysis | Acceptance Criteria |
|---|---|---|---|---|
| 664 | C.2.6.09.05a | 5. Access control points are established to: a) control personnel and vehicle access into the protected area. b) detect firearms, explosives, and incendiary devices at the protected area personnel access points. | Tests, inspections, or combination of tests and inspections of installed systems and equipment at the access control points to the protected area will be performed. Tests, inspections, or combination of tests and inspections of installed systems and equipment at the access control points to the protected area will be performed. | The access control points for the protected area: a) are configured to control personnel and vehicle access. b) include detection equipment that is capable of detecting firearms, incendiary devices, and explosives at the protected area personnel access points. |
| 668 | C.2.6.09.08a | 8.a) Penetrations through the protected area barrier are secured and monitored. 8.b) Unattended openings (such as underground pathways) that intersect the protected area boundary or vital area boundary will be protected by a physical barrier and monitored by intrusion detection equipment or provided surveillance at a frequency sufficient to detect exploitation. | Inspections will be performed of penetrations through the protected area barrier. Inspections will be performed of unattended openings that intersect the protected area boundary or vital area boundary. | Penetrations and openings through the protected area barrier are secured and monitored. Unattended openings (such as underground pathways) that intersect the protected area boundary or vital area boundary are protected by a physical barrier and monitored by intrusion detection equipment or provided surveillance at a frequency sufficient to detect exploitation. |