



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION II

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

May 4, 2010

Southern Nuclear Operating Company, Inc.  
ATTN: Mr. David H. Jones  
Nuclear Site Vice President Vogtle Units 3 & 4  
7825 River Road  
Waynesboro, GA 30830

SUBJECT: SOUTHERN NUCLEAR OPERATING COMPANY VOGTLE ELECTRIC  
GENERATING PLANT UNIT 3 - NRC INSPECTION REPORT 05200011/2010-  
001

Dear Mr. Jones:

During the period of March 8 - May 3, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed inspections of construction activities related to the construction of the proposed Vogtle Electric Generating Plant (Vogtle) Unit 3. The purpose of the inspection was to determine whether construction activities authorized by the Early Site Permit (ESP) and Limited Work Authorization (LWA) were conducted safely and in accordance with NRC requirements. The enclosed inspection report documents the inspection results. At the conclusion of the inspections, the findings were discussed with those members of your staff identified in the enclosed report.

The inspection examined activities conducted under your LWA as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your ESP. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

The report documents one NRC-identified finding of minimal safety significance. This finding was determined to involve a violation of NRC requirements. However, because of the minimal safety significance, the NRC is treating this finding as a violation of minor significance consistent with Section IV.A.3 and Supplement II of the NRC Enforcement Policy. The current Enforcement Policy is available on the NRC's Web site at [www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html](http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html). The circumstances surrounding this finding are described in the body of the inspection report. This report does not require a response.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and any response you choose to provide, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

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

Sincerely,

**/RA/**

Kathleen O'Donohue, Chief  
Construction Inspection Branch 2  
Division of Construction Inspection

Docket No. 52-011  
Early Site Permit No. ESP-004

Enclosure:  
NRC Inspection Report 052-011/2010-001  
w/Attachment: Supplemental Information

cc w/encl: (See next page)

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

Sincerely,

**/RA/**

Kathleen O'Donohue, Chief  
Construction Inspection Branch 2  
Division of Construction Inspection

Docket No. 52-011  
Early Site Permit No. ESP-004

Enclosure:  
NRC Inspection Report 052-011/2010-001  
w/Attachment: Supplemental Information

cc w/encl: (See next page)

☒ PUBLICLY AVAILABLE     
 ☐ NON-PUBLICLY AVAILABLE   
 ☐ SENSITIVE     
 ☒ NON-SENSITIVE  
 ADAMS: ☐ Yes   
 ACCESSION NUMBER: ML101241082     
 ☒ SUNSI REVIEW COMPLETE

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SIGNATURE	CA	DJS	KOD	BD	RJ	DAA	
NAME	C. Abbott	D. Seat	K. O'Donohue	B. Davis	R. Jackson	D. Ayres	
DATE	5/ /2010	5/4/2010	5/4/2010	5/4/2010	5/4/2010	5/4/2010	
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cc w/encl:

Lucious Abram  
Burke's County Commissioner  
P. O. Box 1626  
Waynesboro, GA 30830

Christey Alexander  
P. O. Box 276  
Waynesboro, GA 30830

S. Clay Alexander  
P. O. Box 1177  
Waynesboro, GA 30830

Anne F. Appleby  
Olgethorpe Power Corporation  
2100 East Exchange Place  
Tucker, GA 30084

Attorney General  
Law Department  
132 Judicial Building  
Atlanta, GA 30334

Donald Baynet  
622 Hill Street  
Atlanta, GA 30312

Rodney Bigswell  
402 Pine Street  
Waynesboro, GA 30830

Mr. M. Stanford Blanton Esquire  
Balch and Bingham, LLP  
P.O. Box 306  
Birmingham, AL 35201

Ms. Michele Boyd  
Legislative Director  
Energy Program  
Public Citizens Critical Mass Energy  
and Environmental Program  
215 Pennsylvania Avenue, SE  
Washington, DC 20003

Edwin D. Groover  
1306 Bimini Place  
Augusta, GA 30909-2610

Ed Burke  
828 N. Liberty Street  
Waynesboro, GA 30830

Geri Burke  
828 N. Liberty Street  
Waynesboro, GA 30830

Mathew Cardinale  
Inter-Press Service  
Atlanta Progressive News  
P. O. Box 56154  
Atlanta, GA 30343

Ruby Carter  
Volunteer ACS  
187 Penn Lane  
Girard, GA 30426

County Commissioner  
Office of the County Commissioner  
Burke County Commission  
Waynesboro, GA 30830

Gregory T. Coursey, Sr.  
P. O. Box 702  
Waynesboro, GA 30830

Carter Crawford  
City of Sylvania  
P. O. Box 555  
Sylvania, GA 30467

Mr. James Davis  
ESP Project Engineer  
Southern Nuclear Company  
PO Box 1295, BIN B056  
Birmingham, AL 35201

Mr. Steven M. Jackson  
Senior Engineer - Power Supply  
1470 Riveredge Parkway, NW  
Atlanta, GA 30328-4684

cc: cont. (See next page)

cc. cont.  
Director  
Consumer's Utility  
Counsel Division  
Municipal Electric Authority of Georgia  
Governor's Office of Consumer Affairs2  
Martin Luther King, Jr. Drive Plaza Level  
East, Suite 356  
Atlanta, GA 30334-4600

Mr. Arthur H. Domby, Esquire  
Troutman Sanders  
Nations Bank Plaza  
600 Peachtree Street, NE  
Suite 200  
Atlanta, GA 30308-2216

Mr. Jeffrey T. Gasser  
Executive Vice President  
Southern Nuclear Operating Company, Inc.  
P.O. Box 1295  
Birmingham, AL 35201-1295

Mr. Dave Hanley  
327 Barlow Drive  
Waynesboro, GA 30830

Jim Hardeman  
GA DNR / EPD  
4220 International Pkwy  
Suite 100  
Atlanta, GA 30354

O. C. Harper, IV  
Vice President - Resources Planning and  
Nuclear Development  
Georgia Power Company  
241 Ralph McGill Boulevard  
Atlanta, GA 30308

Mr. Reece McAlister  
Executive Secretary  
Georgia Public Service Commission  
Atlanta, GA 30334

Mr. Thomas O. McCallum  
Site Development Project Engineer  
Southern Nuclear Operating Co., Inc  
PO Box 1295  
Birmingham, AL 35201-1295  
David H. Jones

Site Vice President  
Plant Vogtle - ATTN: Units 3 & 4  
7825 River Road  
Waynesboro, GA 30830

Harry Judd  
GPSC  
244 N Main Street  
Concord, NH 03304

Patricia Keefer  
The Borough  
466 Highway 56 N  
Waynesboro, GA 30830

Robert W. Lee  
GCC  
1035 Postell Drive  
Hephzibah, GA 30815

Mr. Dale M. Lloyd  
Vogtle Deployment Director  
Southern Nuclear Operating Co., Inc  
P. O. Box 1295  
Birmingham, AL 35201-1295

Kathi May  
394A Knight Road  
Waynesboro, GA 30830

Tyler May  
394 A Knight Road  
Waynesboro, GA 30830

Mr. M. W. Price  
Oglethorpe Power Corporation  
2100 East Exchange Place  
P.O. Box 1349  
Tucker, GA

Resident Inspector  
Vogtle Plant  
8805 River Road  
Waynesboro, GA 30830

Michael Vandenbulalu  
P. O. Box 587  
Waynesboro, GA 30830

cc: cont. (See next page)

cc: cont.

Mr. James H. Miller  
President & Chief Executive Officer  
Southern Nuclear Operating Company, Inc.  
P.O. Box 1295  
Birmingham, AL 35201

Mr. Joseph (Buzz) Miller  
Executive Vice President  
Nuclear Development  
P.O. Box 1295  
Birmingham, AL 35201-1295

Mr. Marshall A. Miller, IV  
643 Miller Pond Road  
Waynesboro, GA 30830

Mr. Thomas Moorner  
Environmental Project Manager  
Southern Nuclear Operating Co., Inc.  
PO Box 1295  
Birmingham, AL 35201-1295

Ms. Karen Patterson  
Tetra Tech NUS  
900 Trail Ridge Road  
Aiken, SC 29803

Mr. Charles R. Pierce  
Vogtle Deployment Licensing Manager  
Southern Nuclear Operating Co., Inc.  
PO Box 1295  
Birmingham, AL 35201-1295

Resident Manager  
Oglethorpe Power Corporation  
Alvin W. Vogtle Nuclear Plant  
7821 River Road  
Waynesboro, GA 30830

Elaine Sikes  
Burke County Library  
130 Highway 24 South  
Waynesboro, GA 30830

Mr. Jerry Smith  
Commissioner District 8  
Augusta-Richmond County Commission  
1332 Brown Road  
Hephzibah, GA 30815

Gene Stilp  
1550 Fishing Creek Valley Road  
Harrisburg, PA 17112

Mr. Robert E. Sweeney  
IBEX ESI  
4641 Montgomery Avenue  
Suite 350  
Bethesda, MD 20814

George B. Taylor, Jr  
Oglethorpe Power Corporation  
2100 East Exchange Place  
Tucker, GA 30084

Letter to David H. Jones from Kathleen O'Donohue dated May 4, 2010

SUBJECT: SOUTHERN NUCLEAR OPERATING COMPANY VOGTLE ELECTRIC  
GENERATING PLANT UNIT 3 - NRC INSPECTION REPORT 05200011/2010-  
001

Distribution w/encl:

D. Diaz-Toro, Region II Regional Coordinator  
J. Ledford, Public Affairs Officer, RII  
R. Hannah, Public Affairs Officer, RII  
J. Coleman, Chief, Resource Management Branch, RII  
L. Reyes, RII  
L. Plisco, RII  
C. Ogle, RII  
R. Croteau, RII  
T. Gody, RII  
D. Ayres, RII  
A. Blamey, RII  
M. Lesser, RII  
L. Mellen, RII  
J. Moorman, RII  
K. O'Donohue, RII  
D. Gamberoni, RII  
J. Fuller, SRI-Vogtle Units 3 & 4  
P. Miles, Region II Administrator's Secretary  
S. DuBose, Region II DRAC's Secretary

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

Docket No: 52-011

License No: ESP-004

Report No.: 05200011/2010001

Licensee: Southern Nuclear Operating Company (SNC)

Facility: Vogtle Electric Generating Plant (Vogtle), Unit 3

Location: Burke County, GA

Inspection Dates: March 8 - May 3, 2010

Inspectors: Bradley Davis, Senior Construction Inspector  
Rahsean Jackson, Senior Construction Inspector  
Coleman Abbott, Construction Inspector  
Jamin Seat, Construction Inspector

Accompanying  
Personnel: Chuck Ogle, Director, Division of Construction Inspection  
Kathleen O'Donohue, Chief, Construction Inspection Branch 2  
Mike McCoppin, Chief (Acting), Construction Inspection Branch 2  
Weijun Wang, Senior Geotechnical Engineer  
Ricardo Rodriguez, Geotechnical Engineer

Approved by: \_\_\_\_\_/RA\_\_\_\_\_  
Kathleen O'Donohue  
Construction Inspection Branch 2  
Division of Construction Inspection

May 4, 2010  
Date

Enclosure



## SUMMARY OF FINDINGS

IR 05200011/2010001; 03/08/2010 through 5/03/2010; Vogtle Electric Generating Plant, Unit 3; ITAAC-Related Foundations & Buildings

This report covers a 57 day period of inspection performed by regional construction inspectors. No findings of significance were identified. The Nuclear Regulatory Commission's (NRC's) program for inspection of Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) is described in Inspection Manual Chapter 2503.

### A. NRC-Identified Findings and Licensee Identified/Self-Revealing Violations Evaluated as Findings.

Inspection Procedure: 65001.01, Inspection of ITAAC-Related Foundations & Buildings

2010001-01: Use of Backfill Material from a Source not described in SSAR: During a field inspection on April 19 and 20, 2010, inspectors identified that licensee personnel placed backfill material, which was excavated from an area not described in section 2.5.4.5.4 of the Site Safety Analysis Report (SSAR), into Seismic Category 1 (SC-1) areas of the Unit 3 excavation. In order to use backfill material from other sources, an approved amendment to the SSAR is required. No amendment was approved by the NRC to allow use of backfill from sources other than those described in the SSAR. This issue was determined to be a Construction Finding and a minor violation of 10 CFR 52.39(e) for failure to receive an amendment to the SSAR prior to departing from the terms of the ESP.

### B. Licensee-Identified and Self-Revealing Violations Not Evaluated as Findings

None

## REPORT DETAILS

### A. ITAAC-RELATED INSPECTIONS

Inspection of ITAAC-Related Foundations & Buildings (65001.01) and Inspection of ITAAC-Related Construction Test Program (65001.C)

ITAAC No / Family: SS2.5.4.5.5a / C01

#### 1) Inspection Scope

The inspectors conducted a field inspection of licensee activities involving Site Specific ITAAC SS2.5.4.5.5a, "Inspection: Backfill material under Seismic Category 1 structures is installed to meet a minimum of 95 percent modified Proctor compaction."

Specifically, activities associated with SC-1 backfill excavation, storage, qualification, placement, compaction, and testing were inspected. The inspectors reviewed applicable licensee work control documents to verify that they were adequate for the work being performed. Inspectors also directly observed activities associated with the work control documents to verify proper implementation.

The inspectors reviewed the Southern Company Nuclear Quality Assurance Manual, Revision (Rev.) 9 and the Shaw Standard Nuclear Quality Assurance Program, SWSQAP 1-74A, Rev. B, to determine the general requirements of geotechnical related activities. Shaw specifications, SV0-XE01-Z0-002, Nuclear Island Excavation and Backfill, Rev. 2, and SV0-0000-T1-001, Soil and Concrete Testing, Rev. 0, were reviewed to determine whether testing and placement requirements were adequately established.

Requirements for soil testing activities performed by MACTEC were verified through the review of the MACTEC Nuclear Quality Assurance Manual, Rev. 0. Results of an audit conducted by Shaw to evaluate the adequacy and implementation of the MACTEC Nuclear Quality Assurance program to add MACTEC to its Quality Rating List were also reviewed. NRC inspectors reviewed the Vogtle project specific requirements which were prescribed in MACTEC's Vogtle Electric Generation Plant (VEGP) Units 3 and 4 Soil and Concrete Testing Work Plan, Rev. 0. The inspectors also reviewed Attachment 1 of MACTEC's VEGP Work Plan, Procedure for Document Control, Rev. 0. Software verification of GeoSystem v 2.1 was reviewed to determine the adequacy of calculations performed by the program. Inspectors reviewed the training and qualification records of key MACTEC personnel performing safety-related work.

Inspectors directly observed work activities at MACTEC's Atlanta, GA facility and onsite facilities. Inspection activities included direct observation of laboratory and field testing, sample storage, and document storage areas at both locations. Inspectors verified that laboratory and field technicians performing safety-related work were qualified as required by MACTEC's Nuclear Quality Assurance Manual. They also verified that work activities were performed according to the appropriate procedures and specifications. Inspectors verified that measuring and test equipment was stored and handled correctly, and had a current calibration performed by an approved organization.

Inspectors observed sand-cone test number 346, performed by MACTEC personnel, to verify the field density of the compacted backfill. Sample storage areas were inspected to verify that adequate environmental and access controls were established and samples were properly identified and tracked as required by MACTEC's Procedure of Soil Sampling, Handling, and Transportation, Rev. 0. The implementation of document control requirements was verified at both locations by inspecting the storage and access controls of the physical and electronic quality records. A sample of selected documents was requested to verify that documents were retrievable.

Inspectors observed backfill excavation activities of the Unit 3 footprint, stockpiling of excavated soils, and compacting activities performed by SNC, Shaw, and Morgan personnel. An inspection of the Unit 3 Blue Bluff Marl bearing strata verified uniformity and cleanliness prior to the placement of any backfill. Inspectors observed stockpiling activities to verify the process for segregating, tracking, and qualifying the soil prior to use in SC-1 applications. Inspectors verified that backfill placement was conducted in accordance with Shaw specifications and procedures. Compaction activities and proper equipment were also observed and verified to be adequate. Excavation and fill release cards from Work Package No. VN3-XC10-CV-MS-015 were reviewed for the activities observed. Training requirements for Morgan personnel working under Shaw's Quality Assurance program were evaluated. Qualification for personnel operating equipment for safety related geotechnical construction activities was also verified.

MACTEC Condition Reports (CR) related to field and laboratory testing were reviewed. Shaw Unsatisfactory Inspection Reports (Unsat IR), Nonconformance and Disposition Reports (NDR), and Corrective Action Reports (CAR) related to geotechnical activities were reviewed to verify adequate disposition.

## 2) Findings

On April 6, 2010, a public meeting was held with SNC to discuss a proposed amendment to the ESP to allow excavation of SC-1 backfill material at off-site locations. At this meeting, a SNC presentation summarized current construction activities and provided background information for the proposed amendment. During the presentation, the NRC became aware of the possibility that the excavation of backfill used in SC-1 applications, was currently taking place in areas other than those described in section 2.5.4.5.4 of the SSAR. Section 2.5.4.5.4 described three locations as backfill sources: the powerblock area, the switchyard area, and borrow area 4. Use of backfill from sources other than those specified in the SSAR requires an amendment to the SSAR in accordance with 10 CFR 52.39(e). On April 19 and 20, 2010, NRC inspectors performed an on-site inspection to review this issue.

Through direct observation of construction activities and review of associated records, inspectors determined that backfill placed in the Unit 3 excavation was obtained from the three approved sources and the cooling tower area. The cooling tower area was not listed in the SSAR as one of the approved sources. Inspectors reviewed samples of laboratory test results used to qualify the material for SC-1 use, and determined that the results were in compliance with project specifications. Inspectors reviewed samples of field density and laboratory test results to ensure that the compacted soil met required project specifications at this stage of construction. Inspectors, in collaboration with

NRC Headquarters' geotechnical staff, reviewed data obtained during subsurface exploration for the planning and licensing phases of Units 3 and 4, as well as historical data for Units 1 and 2. Soil placed within the Unit 3 excavation from the cooling tower area was determined to be of the same geological formation as the approved sources and would therefore exhibit similar engineering properties and characteristics. Therefore, inspectors found minimal safety significance associated with the use of soil from the cooling tower area.

However, after discussions with NRO and NRC senior management it was determined that the licensee's use of backfill from the cooling tower area constituted a departure from terms of the ESP. 10 CFR 52.39(e) requires an amendment to the ESP for changes to the SSAR. The licensee did not obtain an amendment prior to using backfill from a source other than those described in the SSAR. The licensee's failure to comply with 10 CFR 52.39(e) constitutes a violation of minor significance that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.

#### B. Exit Meeting Summary

On March 31, 2010, the regional inspectors presented the inspection results to Mr. David Jones and other members of his staff. On April 20, 2010, the regional inspectors re-exited with Mr. Jim Davis and other members of his staff, who acknowledged the finding. On May 3, 2010, the regional inspectors re-exited with David Jones who acknowledged the minor violation. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

## KEY POINTS OF CONTACT

### Licensee personnel

D. Jones, SNC Site Vice President  
J. Davis, SNC Site Licensing Supervisor  
P. Albuquerque, SNC Licensing  
W. Crisler, Shaw Project Quality Director  
J. Williams, SNC Site Support Manager  
T. O'Brien, SNC QC  
D. Logue, SCS E&CS  
D. Schutt, Shaw Licensing  
W. Poppell, Shaw Field Engineering  
J. Rees, Shaw Field Engineering  
A. Reynolds, Shaw QC  
L. Reynolds, Shaw Construction  
G. Newberry, Shaw  
D. Hsu, Shaw  
S. Harris, Shaw  
J. Detwiler, Shaw  
M. Rutherford, Stone and Webster Field Engineering  
A. Kottenstette, MACTEC QA  
J. Martin, MACTEC QA

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

None

### Opened and Closed

### Closed

### Discussed

None

## LIST OF DOCUMENTS REVIEWED

Southern Nuclear Operating Company, Vogtle Early Site Permit Application, Part 2, Site Safety Analysis Report, Rev. 5, Section 2.5, Geology, Seismology, and Geotechnical Engineering  
 Southern Company Nuclear Quality Assurance Manual, Rev. 9  
 Shaw Standard Nuclear Quality Assurance Program, SWSQAP 1-74A, Revision B  
 MACTEC Nuclear Quality Assurance Manual, Revision 0  
 Work Package No. VN3-XC10-CV-MS-015 (Shaw)  
 Work Package No. VNC-NIA-CV-MS-018 (Shaw)  
 Vogtle Electric Generation Plant (VEGP) Units 3 and 4 Soil and Concrete Testing Work Plan, Revision 0, (MACTEC)  
 Specifications, SV0-XE01-Z0-002, Nuclear Island Excavation and Backfill, Revision 2 (Shaw)  
 Specifications, SV0-0000-T1-001, Soil and Concrete Testing, Revision 0 (Shaw)  
 Drawing No. SVO-0000-X3-009, Overall NOI Areas Map, Rev. C, dated 2/15/10 (Shaw)  
 Procedure of Soil Sampling, Handling, and Transportation, Revision 0 (MACTEC)  
 Procedure for Document Control, Revision 0 (MACTEC)  
 Software verification of GeoSystem v 2.1 (MACTEC)  
 Condition Report No. NUK2010-055, 3/25/2010 (MACTEC)  
 Nonconformance and Disposition Report No. V-ND-10-0010, 3/2/2010 (Shaw)  
 Nonconformance and Disposition Report No. V-ND-10-0012, 3/22/2010 (Shaw)  
 Shaw Nuclear Services, Inc., Quality Assurance Audit Report, Audit No. V209-13, Audit of MACTEC Engineering and Consulting, Inc.

## LIST OF ACRONYMS

CAR	Corrective Action Reports
CFR	Code of Federal Regulations
CR	Condition Reports
ESP	Early Site Permit
ITAAC	Inspections, Tests, Analyses, and Acceptance Criteria
LWA	Limited Work Authorization
M&TE	Measuring and Test Equipment
NDR	Nonconformance and Disposition Reports and
NRC	U.S. Nuclear Regulatory Commission
Rev	Revision
SC	Seismic Category
SNC	Southern Nuclear Operating Company
SSAR	Site Safety Analysis Report
UnSat IR	Unsatisfactory Inspection Reports
VEGP	Vogtle Electric Generation Plant