

U. S. NUCLEAR REGULATORY COMMISSION (NRC)

REGION II

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

Report No: 50-424/99-09 and 50-425/99-09

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Vogtle Electric Generating Plant Units 1 and 2

Location: 7821 River Road  
Waynesboro, GA 30830

Dates: November 28, 1999 through January 8, 2000

Inspectors: J. Zeiler, Senior Resident Inspector  
K. O'Donohue, Resident Inspector

Approved by: Joel T. Munday, Acting Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

Enclosure

## EXECUTIVE SUMMARY

### Vogtle Electric Generating Plant Units 1 and 2 NRC Inspection Report 50-424/99-09 and 50-425/99-09

This integrated inspection included aspects of licensee operations, engineering, maintenance, and plant support. The report covers a six-week period of resident inspection.

#### Operations

- Operator performance during Unit 2 shutdown and subsequent restart to repair tube failures in the 1C feedwater heater was characterized by deliberate and safety conscious decision-making (Section O1.1).
- Operator actions to manually trip the Unit 2 reactor following indications of a misaligned control rod were appropriate (Section O1.2).

#### Maintenance

- The failure to ensure that the Control Room Emergency Filtration System remained operable during control room door maintenance was a violation of Technical Specification 3.7.10. This violation was identified as Non-Cited Violation 50-424, 425/99-09-01, "Control Room Emergency Filtration System Inoperability" (Section M8.1).

## Report Details

### Summary of Plant Status

Unit 1 operated at essentially 100 percent Rated Thermal Power (RTP) throughout the inspection period.

Unit 2 operated at 100 percent RTP until December 20, 1999, at which time a downpower to 95 percent power was initiated following isolation of the 1C feedwater heater due to suspected tube failures. On December 27, the unit was shutdown to Mode 3 to repair the 1C feedwater heater. On December 30, during reactor startup, the unit was manually tripped due to a misaligned control rod. The reactor was restarted that same day and was tied to the grid on December 31. The unit returned to 100 percent RTP on January 1, 2000 and operated at essentially full power for the remainder of the inspection period.

### I. Operations

#### **O1 Conduct of Operations**

##### **O1.1 General Observations of Operations Activities (71707)**

The inspectors conducted routine control room tours and attended operations shift turnovers and daily management plant status meetings. Operator logs were reviewed to verify compliance with Technical Specifications (TS). Instrumentation, computer indications, and safety system lineups were periodically reviewed to assess system availability. No problems were identified in the above areas. Operator performance during Unit 2 shutdown and subsequent restart to repair tube failures in the 1C feedwater heater was characterized by deliberate and safety conscious decision-making.

##### **O1.2 Unit 2 Manual Trip Due to Misaligned Control Rod (71707)**

On December 30, 1999, Unit 2 was being restarted following a 1C feedwater heater tube repair outage. During withdrawal of Control Rod Bank B, the Digital Rod Position Indication (DRPI) system indicated that control rod B6 in Bank B dropped from 84 to 60 steps. Following initial verification that DRPI was indicating accurately, the operators manually tripped the reactor and all rods inserted as expected.

The inspectors determined that the operator response to the misaligned rod was in accordance with abnormal operating procedure guidance. Based on review of equipment trip response data and the licensee's preliminary post trip report, the inspectors determined that all safety-related equipment responded as expected to the trip.

The licensee determined that a blocking diode in the moveable gripper coil circuit associated with control rod B6 had faulted resulting in the rod drop. Following replacement of the diode and subsequent post-maintenance testing, unit restart was successful on December 30. The inspectors were informed that there had been similar industry incidences where these same blocking diodes had failed resulting in similar consequences. The licensee indicated that they planned to work with the Westinghouse Owner's Group to address the resolution of this design failure vulnerability.

## II. Maintenance

### **M1 Conduct of Maintenance**

#### **M1.1 General Observations of Maintenance and Surveillance Activities (61726) (62707)**

The inspectors observed or reviewed portions of selected maintenance and surveillance activities in progress. This included a Unit 2 1C feedwater heater tube repair outage and control rod blocking diode failure that occurred during the subsequent unit startup. For those maintenance and surveillance activities observed or reviewed, the inspectors determined that the activities were conducted in a satisfactory manner and that the work was properly performed in accordance with approved maintenance work orders and procedures and by qualified personnel knowledgeable of their assigned tasks. Problems encountered during the performance of activities were properly resolved.

### **M8 Miscellaneous Maintenance Issues (40500)(92902)**

#### **M8.1 (Closed) Licensee Event Report (LER) 50-424, 425/99-003-00: Control Room Door Painting Results In Loss Of Positive Pressure Boundary**

This LER involved personnel simultaneously propping open both control room doors that form the control room pressure boundary during door painting activities. The licensee determined that during the nine minute period that both doors were open, the Control Room Emergency Filtration System (CREFS) would be unable to maintain a control room positive pressure, if required.

The licensee's root cause investigation determined that the painters failed to follow the repositioned door forms directions and that the pre-job briefs between the job supervisor and the painters were inadequate. Corrective actions included retraining personnel on expectations of administrative procedures 00010-C, "Pre-Job Briefs," and 00310-C, "Standard For Use Of Doors," and revising 00310-C to clarify expectations that the repositioned door forms are applicable only for one shift.

Technical Specification 3.7.10 requires all four trains of CREFS to be operable and capable of maintaining positive pressure in the control room with both units in Modes 1-4. Contrary to the above, CREFS was inoperable when the two control room pressure boundary doors were held open simultaneously resulting in the loss of the CREFS' capability to maintain a positive pressure. The plant operated in a condition prohibited

by TS when CREFS was inoperable. Consistent with Section VII.B.1.a of the NRC Enforcement Policy, this violation of TS 3.7.10 is identified as Non-Cited Violation (NCV) 50-424, 425/99-09-01, "Control Room Emergency Filtration System Inoperability." This violation was in the licensee's corrective action program as LER 1-99-003 and Condition Report (CR) 119990822.

### III. Engineering

#### **E1 Conduct of Engineering**

##### **E1.1 General Observations (37551)**

The inspectors observed Engineering support activities for CR evaluations, review of plant equipment problems and associated corrective action plans, and a post-trip review meeting. Engineering activities reviewed were thorough and technically viable. Plant equipment problems were being addressed commensurate with plant safety.

### IV. Plant Support

#### **R1 Radiological Protection and Chemistry Controls**

##### **R1.1 General Comments (71750)**

The inspectors routinely observed radiologically controlled areas to verify adequacy of access controls, locked areas, personnel monitoring, surveys, and postings. The inspectors also routinely reviewed primary and secondary chemistry results. Radiological controls were adequate. Radiological areas were properly posted and high radiation areas were labeled. Personnel were attentive and followed radiological requirements. The licensee provided thorough management oversight of radiological and chemistry activities.

#### **S1 Conduct of Security and Safeguards Activities**

##### **S1.1 General Observations of Security and Safeguards Activities (71750)**

The inspectors periodically toured the protected area to observe security control functions. The inspectors observed visitor escorting, the use of special purpose detectors at the protected area entrance, and observed personnel, packages, and vehicles entering the protected area. In addition, the inspectors observed a security force response drill that tested the security force response and deployment to simulated armed intruders. The inspectors determined that the security fence was intact and the isolation zones were being adequately maintained free of objects. Visitor escorting and special purpose detectors were used as applicable before personnel or package entry. The security drill adequately demonstrated the security force response capabilities.

## V. Management Meetings and Other Areas

### X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on January 14, 2000. The licensee acknowledged the findings presented. No information was examined during the inspection that was considered proprietary.

### PARTIAL LIST OF PERSONS CONTACTED

#### Licensee

R. Brown, Manager, Training and Emergency Preparedness  
 W. Burmeister, Manager Engineering Support  
 S. Chesnut, Plant Operations Assistant General Manager  
 G. Frederick, Manager Operations  
 J. Gasser, Nuclear Plant General Manager  
 K. Holmes, Manager Maintenance  
 P. Rushton, Plant Support Assistant General Manager  
 M. Sheibani, Nuclear Safety and Compliance Supervisor

### INSPECTION PROCEDURES USED

IP 37551: Onsite Engineering  
 IP 40500: Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems  
 IP 61726: Surveillance Observation  
 IP 62707: Maintenance Observation  
 IP 71707: Plant Operations  
 IP 71750: Plant Support  
 IP 92902: Followup - Maintenance

### ITEMS OPENED AND CLOSED

ITEM NUMBER	TYPE	DESCRIPTION
<u>Closed</u>		
50-424, 425/99-003-00	LER	Control Room Door Painting Results In Loss Of Positive Pressure Boundary (Section M8.1)
50-424, 425/99-09-01	NCV	Control Room Emergency Filtration System Inoperability (Section M8.1)