

U. S. NUCLEAR REGULATORY COMMISSION (NRC)

REGION II

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

Report No: 50-424/99-08 and 50-425/99-08

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Vogtle Electric Generating Plant Units 1 and 2

Location: 7821 River Road
Waynesboro, GA 30830

Dates: October 17 through November 27, 1999

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

Approved by: P. Skinner, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Enclosure

EXECUTIVE SUMMARY

Vogtle Electric Generating Plant Units 1 and 2 NRC Inspection Report 50-424/99-08 and 50-425/99-08

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

Operations

- Operation's performance during startup from Unit 2 refueling outage 2R7 was thorough and activities were well controlled. In particular, during high risk evolutions, such as reactor coolant system reduced inventory, activities were conducted with direct management oversight and with heightened emphasis on risk (Section O1.2).
- Inadequate procedural guidance for safety injection (SI) system fill and vent was a violation of Technical Specification 5.4.1. This violation was identified as Non-Cited Violation 50-425/99-08-01, "Air Intrusion of SI Pumps Due to Inadequate Procedures." This violation is in the licensee's corrective action program as Licensee Event Report 2-99-002 and Condition Report 219990335 (Section O8.1).
- The licensee reviewed Generic Letter 98-02, Loss of Reactor Coolant Inventory and Associated Potential for Loss of Emergency Mitigation Functions While in a Shutdown Condition, and controls were in place to prevent reactor coolant system draindown during shutdown and common-mode failures (Section O3.1).

Report Details

Summary of Plant Status

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

Unit 2 began the inspection period defueled in the process of completing the seventh refueling outage (2R7). The unit was tied to the electrical grid on November 5, completing the outage. Full power operation was attained on November 10. The unit 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.

O1.2 Observations of Unit 2 Fuel Reload, Heatup, and Restart from Refueling Outage 2R7 (71707)

The inspectors observed operations activities associated with the Unit 2 restart from refueling outage 2R7 including fuel reload, reactor coolant system fill and vent, entry into Modes 5 through 3, reactor criticality, low power physics testing, and power ascension. The inspectors determined that licensee performance during these evolutions were well controlled and thorough. In particular, the inspectors noted that high risk evolutions were conducted with direct management oversight and heightened emphasis on risk.

O2 Operational Status of Facilities and Equipment

O2.1 Cold Weather Preparations Review (71714)

Using NRC Inspection Procedure 71714, Cold Weather Preparations, the inspectors verified that the licensee had implemented applicable cold weather procedure requirements, inspected selected freeze protection and heat tracing equipment and panels, and verified that preventive maintenance (PMs) related to freeze protection equipment was completed. Generally, the inspectors determined that freeze protection and heat tracing equipment was in adequate condition to perform its intended design function. For heat tracing equipment that was not operational, the inspectors verified that work orders had been initiated to resolve these equipment problems, and appropriate compensatory actions were implemented.

O3 Operations Procedures and Documentation**O3.1 Generic Letter (GL) 98-02, Draindown During Shutdown and Common-Mode Failure (Temporary Instruction (TI) 2515/142)**

The inspectors reviewed the licensee's response to GL 98-02, "Loss of Reactor Coolant Inventory and Associated Potential for Loss of Emergency Mitigation Functions While in a Shutdown Condition." The licensee's initial assessment identified that the plant was susceptible to a common-cause failure similar to that described in GL 98-02. Several action items identified included procedure evaluation and revision, enhanced operator training, and clarification of operational guidance. An audit was performed in January 1999 by the licensee's Safety and Engineering Review group which identified additional and more specific actions to address the potential for reactor coolant system draindown during shutdown conditions. The inspectors reviewed all of the licensee's actions associated with the GL and determined that the licensee had adequately addressed the GL concerns. The inspectors verified that all of the actions had been completed.

During 2R7, the inspectors verified that plant configuration controls existed to prevent a similar event as described in GL 98-02. This included a review of the startup and shutdown procedures, clearance and tagging controls, and the locked valve program. Based on this review, the inspectors concluded that the licensee had appropriate operational controls to prevent a similar event.

O8 Miscellaneous Operations Issues (40500)(92901)**O8.1 (Closed) Unresolved Item (URI) 50-425/99-07-01: Review of Risk Analysis of Air Intrusion into the Unit 2 Safety Injection System****(Closed) Licensee Event Reports (LERs) 50-425/99-002-00, -01: Safety Injection Pumps Declared Inoperable Due to Air Intrusion**

This URI involved the licensee's September 26, 1999, discovery of air in the 2A and 2B Safety Injection (SI) system piping following online maintenance that drained portions of the system. The licensee's event review team determined that air remained in the SI system piping following maintenance activities due to inadequate procedural guidance for the filling and venting requirements. Technical Specification 5.4.1 requires written procedures to be established for the activities identified in Appendix A of Regulatory Guide (RG) 1.33, Revision 2, February 1978. RG 1.33 required procedures to provide instruction for filling and venting the Emergency Core Cooling System (ECCS). Contrary to the above, in that the SI system was part of the ECCS, the licensee failed to establish adequate filling and venting procedures. Consistent with Section VII.B.1.a of the NRC Enforcement Policy, this violation of TS 5.4.1 is identified as Non-Cited Violation (NCV) 50-425/99-08-01, "Air Intrusion of SI Pumps Due to Inadequate Procedures." This violation was in the licensee's corrective action program as CR 219990335 and LER 2-99-002.

The licensee performed a Probabilistic Risk Assessment (PRA) of the event and concluded that air intrusion of the 2A and 2B SI pumps was not risk significant, based on industry risk threshold guidance. The NRC reviewed this PRA and concurred with the licensee's methodology and conclusions. The inspectors reviewed Condition Report (CR) 219990335, LER 2-99-002, and the licensee's event review team report, ER-2-99-003. The inspectors determined that the corrective actions associated with the event were adequate.

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 test activities including Unit 2 refueling outage related maintenance and test activities on the primary and secondary systems. For those maintenance and surveillance activities observed or reviewed, the inspectors determined that the activities were properly conducted in a satisfactory manner and by qualified personnel knowledgeable of their assigned tasks. Procedures were present at the work location and provided sufficient guidance. Problems encountered during the performance of activities were properly resolved.

III. Engineering

E1 Conduct of Engineering

E1.1 General Observations (37551)

The inspectors observed engineering support of day-to-day operational and maintenance issues, CR evaluations, and problems identified during the Unit 2 refueling outage. In addition, the inspectors reviewed selected design change modification packages (DCP) implemented during the Unit 2 outage, as well as several Unit 2 Temporary Modifications (TMs) that were developed and implemented following the refueling outage.

Timely and effective engineering support was noted in the areas reviewed. Engineering involvement and evaluations of emergent and outage related equipment problems were thorough and technically sound. The DCPs and TMs were detailed and consistent with NRC and licensee design change requirements.

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 Routine Observation of Radiological Protection Controls (71750)

The inspectors periodically toured the radiological control area (RCA) and observed radiological practices to verify adequacy of access controls, locked areas, personnel monitoring, surveys, and postings. The inspectors also observed Unit 2 refueling outage radiological support activities including containment access controls, contamination controls, and health physics briefings and coverage of outage related maintenance activities.

The inspectors determined that radiological controls were thorough and well planned. Health physics briefings were detailed and thorough. Health physics technicians provided positive control and support of work activities in the RCA. Plant personnel observed working in the RCA demonstrated good knowledge and application of appropriate Radiation Work Permit requirements.

S1 Conduct of Security and Safeguards Activities

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

The inspectors periodically toured the protected area for adequate lighting and security control functions, observed visitor escorting, the use of special purpose detectors at the protected area entrance, and observed personnel, packages, and vehicles entering the protected area. The inspectors determined that the security fence was intact and the isolation zones were being adequately maintained free of objects. Lighting of the perimeter and protected area was acceptable. Visitor escorting and special purpose detectors were used as applicable before personnel or package entry.

V. Management Meetings and Other Areas

X1 Exit Meeting Summary

The inspectors presented the inspections results to licensee management on December 3, 1999. The licensee acknowledged the findings presented. No proprietary information was identified.

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 71714: | Cold Weather Preparations | | |
| IP 71750: | Plant Support | | |
| IP 92901: | Followup - Operations | | |
| TI 2515/142: | Draindown During Shutdown and Common Mode Failure | | |

ITEMS OPENED AND CLOSED

| ITEM NUMBER | TYPE | DESCRIPTION |
|------------------|------|---|
| <u>Closed</u> | | |
| TI 2515/142 | TI | Draindown During Shutdown and Common-mode Failure (Section O3.1) |
| 50-425/99-07-01 | URI | Review of Risk Analysis of Air Intrusion into the Unit 2 Safety Injection System (Section O8.1) |
| 50-425/99-002-00 | LER | Safety Injection Pumps Declared Inoperable Due to Air Intrusion (Section O8.1) |
| 50-425/99-002-01 | LER | Safety Injection Pumps Declared Inoperable Due to Air Intrusion (Section O8.1) |
| 50-425/99-08-01 | NCV | Air Intrusion of SI Pumps Due to Inadequate Procedures (Section O8.1) |