



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION II  
SAM NUNN ATLANTA FEDERAL CENTER  
61 FORSYTH STREET, SW, SUITE 23T85  
ATLANTA, GEORGIA 30303-8931

March 31, 2006

Southern Nuclear Operating Company, Inc.  
ATTN: Mr. H. L. Sumner, Jr.  
Vice President  
P. O. Box 1295  
Birmingham, AL 35201-1295

SUBJECT: EDWIN I. HATCH NUCLEAR POWER PLANT - NRC INSPECTION REPORT  
NOS. 05000321/2003009 AND 05000366/2003009

Dear Mr. Sumner:

On February 14, 2006, the U.S. Nuclear Regulatory Commission (NRC) completed an in-office review related to an unresolved item identified during the Triennial Fire Protection Inspection of 2003. A meeting was held in the Region II office with regional staff and Mr. R. Baker and Mr. D. Parker on December 7, 2005, to discuss the status of SNC's proposed resolutions for protecting the affected cables of eleven safety-relief valves and to clarify the staff's position regarding the use of local operator actions in lieu of circuit protection as required by NRC regulations. Following completion of additional review in the Region II office, a final exit was held by telephone with Mr. D. Madison and other members of your staff on March 31, 2006.

The in-office review consisted of evaluating the safety significance of particular spurious valve operations and reviewing your compensatory measures and various proposed final resolutions. The issue remains unresolved for reasons described in the enclosed report.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be 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 Website 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\\**

D. Charles Payne, Chief  
Engineering Branch 2  
Division of Reactor Safety

cc w/encl - See next page

Docket Nos.: 50-321, 50-366  
License Nos.: DPR-57, NPF-5

Enclosure: NRC Triennial Fire Protection Inspection Report Nos. 05000366/2003009,  
05000321/2003009 w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-321, 50-366

License Nos.: DPR-57, NPF-5

Report No.: 05000321/2003009 and 05000366/2003009

Licensee: Southern Nuclear Operating Company

Facility: Edwin I. Hatch Nuclear Plant, Units 1 and 2

Location: P. O. Box 2010  
Baxley, GA. 31513

Dates: February 14, 2006

Inspector: N. Staples, Reactor Inspector

Approved by: D. Charles Payne, Chief  
Engineering Branch 2  
Division of Reactor Safety

Summary of Findings

IR 05000366/2003-009, 05000321/2003-009; 02/14/2006; E. I. Hatch Nuclear Plant, Units 1 and 2.

Enclosure

The report covered an in-office review of an unresolved item related to fire protection by a Regional Inspector. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

None

B. Licensee-Identified Violations

None

Enclosure

## REPORT DETAILS

### 4. OTHER ACTIVITIES

#### 4OA5 Other

(Discussed) URI 05000366/2003006-01: Concerns Associated with Potential Opening of SRVs

Introduction: The Inspector reviewed an unresolved item (URI) involving the failure to protect circuits against fire which could lead to spurious opening of all eleven safety relief valves (SRV). The team had found instrumentation cables, that could cause maloperation of safe shutdown equipment, in FA 2104 without adequate spatial separation or fire barriers. The finding remains unresolved pending review of proposed corrective actions for the circuit design of the eleven SRVs.

Description: During the 2003 Triennial Fire Protection Inspection, the inspection team performed a circuit analysis of Group A safety relief valves for which the licensee took safe shutdown credit for fires in Fire Area 2104, Unit 2 East Cableway. The requirements of 10 CFR 50, Appendix R, Section III.G.2, apply to this fire area. The team identified that two reactor pressure instrument cables (for circuits ABE019C08 and ABE019C09) were located in the same cable tray and thereby exposed to the same heating rate which could potentially cause both circuits to simultaneously fail high and result in all eleven SRVs spuriously opening. Each cable consisted of a single twisted pair of insulated conductors, an uninsulated drain wire that was wound around the twisted pair of conductors, and a foil shield. The conductor insulation and jacket material of each cable was cross-linked polyethylene (XLPE). A thermal assault on instrument cables could result in (false high) signals, generated as a result of leakage current in each damaged cable. These undesired false high signals could actuate the SRV electrical backup scheme and cause all eleven SRVs to open. In addition, this failure mode would defeat the capability to manually control these SRVs. Normally, whenever a SRV lifted, it would remain open until nuclear boiler pressure was reduced to about 85% of its overpressure lift setpoint. However, if the instrument loops have failed high, the trip unit master relays and the trip unit slave relays would continue to energize the pilot valve of the individual SRV and maintain the SRV open. As a result, this failure mode could result in spurious actuation of all eleven SRVs with the eleven SRVs subsequently remaining open.

In response to this finding, the licensee initiated Condition Report 2003008203 and promptly revised AOP 34AB-X43-001-2, Fire Procedure, Version 10.8 dated May 28, 2003. The procedure change enabled the local operator actions to prevent all eleven SRVs from opening simultaneously to be accomplished earlier during a fire in the Unit 2 East Cableway, or in other fire areas that were vulnerable to the potential for spuriously opening all eleven safety relief valves. While, the revised procedure was an acceptable interim compensatory measure, it was not a permanent resolution to the circuit damage issue because Appendix R, Section III.G.2 does not allow use of local operator actions in lieu of circuit protection to ensure safe shutdown. On December 7, 2005, NRC staff met with the licensee to discuss proposed options for protecting cables from a fire in FA 2104 and to clarify the staff's position on regulation regarding the use of local operator actions in lieu of circuit protection. While various options were presented by the licensee, the licensee had not yet determined a final resolution. This URI will remain open pending the licensee's final resolution.

#### 4OA6 Meetings, Including Exit

##### Exit meeting Summary

On March 31, 2006, the regional staff presented the status results to Dennis Madison and other members of his staff, who acknowledged the findings. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

Enclosure

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee Personnel:

R. Baker, Licensing Supervisor (Corporate)  
I. Luker, Senior Engineer, Licensing  
D. Madison, General Manager for Plant Hatch  
D. Parker, Senior Engineer, Electrical  
K. Underwood, Performance Analysis Supervisor  
J. Vance, Senior Engineer, Mechanical & Civil  
O. Vidal, Principal Engineer, Licensing  
P. Wells, Plant Support General Manager

### **LIST OF ITEMS DISCUSSED**

#### Discussed

05000366/2003006-01 URI Concerns Associated with Potential Opening of SRVs

### **LIST OF DOCUMENTS REVIEWED**

#### Procedure:

AOP 34AB-X43-001-2, Fire Procedure, Version 10.8

#### Drawings

H-11821, Fire Hazards Analysis, Turbine Bldg. El. 130'-0", Rev. 0  
H-26014, R.H.R. System P&ID Sheet 1, Rev. 49  
H-26015, R.H.R. System P&ID Sheet 2, Rev. 46  
H-26018, Core Spray System P&ID, Rev. 29  
H-11821, Fire Hazards Analysis Drawing, Turbine Building, Rev. 11

#### Calculations, Analyses, and Evaluations

E. I. Hatch Nuclear Plant Units 1 and 2 Safe Shutdown Analysis Report, Rev. 20.  
Edwin I. Hatch Nuclear Plant Fire Hazards Analysis and Fire Protection Program, Rev. 20

#### Corrective Action Reviewed

CR 2003008203, Safety relief valves Manual Action Steps in Fire Procedure

License Basis Documents

Hatch UFSAR Section 6.3, Emergency Core Cooling System, Rev. 21

Safe Shutdown Analysis Report for E.I. Hatch Nuclear Plant Units 1 and 2, Rev. 26

Fire Hazards Analysis for E. I. Hatch Nuclear Plant Units 1 and 2, Rev.18 C, dated 7/00

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