UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8931

December 18, 2000

Southern Nuclear Operating Company, Inc.
ATTN.: Mr. D. N. Morey
Vice President
P. O. Box 1295
Birmingham, AL 35201-1295

SUBJECT: FARLEY NUCLEAR PLANT - NRC INSPECTION REPORT NOs. 50-348/00-12 AND 50-364/00-12

Dear Mr. Morey:

By letter dated September 29, 2000, you were informed that the NRC would conduct a supplemental inspection at your Farley Nuclear Plant for a White Performance Indicator in the Initiating Events Cornerstone for Unit One Unplanned Power Changes. The enclosed inspection report presents the results of that supplemental inspection. The results of this inspection were discussed on November 17, 2000, with Mr. D. Grissette and other members of your staff.

This supplemental inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of activities, and interviews with personnel. Specifically, the inspectors reviewed the issues and circumstances surrounding the reported White Performance Indicator in the Initiating Events Cornerstone for Unit One Unplanned Power Changes and the resulting root cause evaluation.

Based on this inspection, we have concluded that your root cause evaluation was thorough and effectively identified the primary root cause and contributing causes. The proposed corrective actions appropriately addressed the results of your root cause evaluation and your implementation schedule was consistent with the overall safety significance of the problem.

In accordance with 10 CFR 2.790 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 Web site at *http://www.nrc.gov/NRC/ADAMS/index.html* (the Public Electronic Reading Room).

Sincerely,

/RA/

Stephen J. Cahill, Chief
Reactor Projects, Branch 2
Division of Reactor Projects

Docket Nos. 50-348 and 50-364
License Nos. NPF-2 and NPF-8

Enclosure: NRC Inspection Report Nos. 50-348/00-12
and 50-364/00-12

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	50-348 and 50-364
License Nos.:	NPF-2 and NPF-8
Report Nos.:	50-348/00-12 and 50-364/00-12
Licensee:	Southern Nuclear Operating Company, Inc.
Facility:	Farley Nuclear Plant, Units 1 and 2
Location:	7388 N. State Highway 95 Columbia, AL 36319
Dates:	October 21 to November 17, 2000
Inspectors:	T. P. Johnson, Senior Resident Inspector R. K. Caldwell, Resident Inspector
Approved by:	Stephen J. Cahill, Chief Reactor Projects, Branch 2 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR05000348-00-12, IR05000364-00-12, on 10/21 -11/17/2000, Southern Nuclear Operating Company, Farley Nuclear Power Plant Units 1 and 2. Supplemental inspection of Unit 1 white Performance Indicator for Unplanned Power Changes.

The inspection was conducted by the resident inspectors. No findings were identified.

Cornerstone: Initiating Events

This supplemental inspection, performed in accordance with NRC Inspection Procedure 95001, was done to assess the licensee's evaluation and corrective actions associated with a white Unit 1 Performance Indicator (PI) for Unplanned Power Changes. The PI crossed the green-white threshold (more than six unplanned power changes of greater than 20% per 7,000 hours of critical operation) due to six unplanned Unit 1 power changes during the past year. Four of these were due to plant cooling tower problems, one was due to a feedwater pump lubricating oil pressure switch failure, and one was due to a turbine extraction steam bellows failure in the Unit 1 main condenser. The licensee reported this white PI to the NRC on October 21, 2000, during the routine third quarter PI submittal.

During this supplemental inspection the inspectors determined that the licensee performed a comprehensive investigation and evaluation of the issues which caused the PI on Unit 1 to become white. The licensee identified the commonalities in these six unplanned power changes to be component aging and end of service life, which are being addressed through improvements to the preventive and predictive maintenance programs. Additionally, the licensee identified that Farley management was not considering any additional risk associated with power changes when responding to failed or degraded components. The licensee has modified their administrative procedures and will conduct formal training to ensure they assess the additional risk during future power changes. The licensee has also scheduled an effectiveness evaluation by their Safety Audit and Engineering Review group to assess the adequacy of the root cause and corrective actions.

Report Details

01 Inspection Scope

This supplemental inspection was done to assess the licensee's evaluation and corrective actions for a Unit 1 White Performance Indicator (PI) for Unplanned Power Changes. The licensee initiated six unplanned Unit 1 power changes during the past year; four were due to plant cooling tower problems, one was due to a failed feedwater pump lubricating oil pressure switch, and one was due to a failed turbine extraction steam bellows in the Unit 1 main condenser. The licensee reported this White PI to the NRC on October 21, 2000, during the third quarter PI submittal. Since this supplemental inspection was conducted using the requirements of IP 95002, the following report details are organized by the specific inspection requirements of IP 95002 which are noted in italics in the following sections.

02 Evaluation of Inspection Requirements

02.01 *Problem Identification*

a. *Determine that the evaluation identifies who (i.e., licensee, self revealing, or NRC), and under what conditions the issue was identified.*

Two of the six power changes, the feedwater pump lubricating oil pressure switch failure and one plant cooling tower problem, were self revealing. The other four power changes, the turbine extraction steam bellows failure and three plant cooling tower problems, were due to conditions identified by the licensee. These conditions were identified during routine power operations, primarily by periodic equipment inspections.

b. *Determine that the evaluation documents how long the issue existed and prior opportunities for identification.*

For the turbine extraction steam bellows failure, the licensee had noted indications of abnormal secondary plant parameters and decreased unit output in response. The licensee investigation identified that prior opportunities had existed for identification of the bellows failure through existing operating experience information.

The plant cooling tower problems were discovered during periodic walk downs by operators and system engineers. The licensee investigation determined that the cooling tower aging issues and degradation could have been predicted and identified earlier. The licensee based this conclusion on the known degradation of structural timbers and the results of subsequent inspections of difficult-to-get-to areas.

The inspectors confirmed that the licensee's determinations were appropriate.

c. *Determine that the evaluation documents the plant specific risk consequences (as applicable) and compliance concerns associated with the issue.*

Power changes could increase the frequency of a loss of condenser vacuum as an initiating event. For these minor power changes, the licensee determined there was a negligible increase of this event frequency because there was a very small chance of losing condenser vacuum. The equipment affected was not safety-related; therefore, there were no issues related to Technical Specification compliance.

02.02 *Root Cause and Extent of Condition Evaluation*

a. *Evaluation of methods used to identify root cause(s) and contributing cause(s).*

The inspectors verified that the licensee followed procedures FNP-0-ACP-9.0, Root Cause Program, and FNP-0-ACP-9.1, Root Cause Investigation, to evaluate each of the issues. The licensee evaluation included barrier, change, and event and causal factor analysis. The procedures required conducting interviews with key personnel, data collection, document review, and the preservation of physical evidence associated with the issue.

b. *Level of detail of the root cause evaluation.*

The inspectors determined the licensee's white PI root cause evaluation was thorough. The licensee identified the primary root cause as component aging and end of service life. A contributing cause was that they had not incorporated the additional risk associated with power changes into their evaluation when responding to failed or degraded components. The licensee reviewed the individual event cause determinations as well as potential common event causes.

c. *Consideration of prior occurrences of the problem and knowledge of prior operating experience.*

The licensee reviewed industry and Farley operating experience to determine if similar problems had previously been reported for these problems. There was industry operating experience for the bellows failure and for the cooling tower problems. The licensee concluded that they could have been more pro-active in reviewing related operating experience information for these two failures.

d. *Consideration of potential common cause(s) and extent of condition of the problem.*

The licensee considered the potential for common cause and conducted a broadness (extent of condition) review. The licensee determined that these issues could affect other plant equipment. The licensee had found numerous bellows degradations on Unit 1, so detailed inspections of both the Unit 1 and Unit 2 plant cooling towers were performed which identified similar degradations. Interim repairs were in progress at the end of the inspection. The licensee had plans to replace the towers in the future.

02.03 *Corrective Actions*

a. *Appropriateness of corrective actions.*

The licensee identified that administrative procedure FNP-0-M-89, Maintenance Rule Implementation Manual, would be revised to include risk assessment of plant power changes. Formal training on this procedure change will also be conducted. Preventive and predictive maintenance optimization programs were addressing equipment aging issues.

The inspectors concluded that the corrective actions were adequate.

b. *Prioritization of corrective actions.*

The licensee has revised procedure FNP-0-M-89 and will complete formal training by the end of 2000. The preventive maintenance optimization program will be completed by the end of 2001.

c. *Establishment of schedule for implementing and completing the corrective actions.*

The licensee's plans for the hardware upgrades and programmatic enhancements were consistent with the overall risk significance of the equipment.

d. *Establishment of quantitative or qualitative measures of success for determining the effectiveness of the corrective actions to prevent recurrence.*

Licensee management has reviewed and approved the root cause evaluations and proposed corrective actions. The licensee has also scheduled a Safety Audit and Engineering Review effectiveness evaluation to assess the adequacy of the root cause and corrective actions.

03 Management Meetings

Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on November 17, 2000. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

These issues were discussed further during a telephone call with Mr. M. Stinson of the Farley Nuclear Plant and Mr. Stephen Cahill of the NRC Region II office on November 27, 2000.

ATTACHMENT

Partial List of Persons Contacted

R. V. Badham, Safety Audit Engineering Review Supervisor
C. D. Collins, Operations Manager
J. Deal, Root Cause Team and System Engineer
S. Fulmer, Plant Training and Emergency Preparadness Manager
D. E. Grissette, Assistant General Manager - Operations
W. Jaasma, Root Cause Team
J. R. Johnson, Maintenance Manager
F. Leroy, Root Cause Team
R. R. Martin, Engineering Support Manager
C. D. Nesbitt, Assistant General Manager - Plant Support
L. M. Stinson, Plant General Manager - FNP