U.S. NUCLEAR REGULATORY COMMISSION

REGION II

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

Report Nos: 50-321/98-07, 50-366/98-07

Licensee: Southern Nuclear Operating Company, Inc. (SNC)

Facility: E. I. Hatch Plant, Units 1 & 2

Location: P. O. Box 2010
Baxley, Georgia 31515

Dates: November 1 through December 12, 1998

Inspectors: J. Munday, Senior Resident Inspector
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T. Fredette, Resident Inspector

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

Enclosure

EXECUTIVE SUMMARY

Hatch Nuclear Plant, Units 1 & 2
NRC Inspection Report 50-321/98-07, 50-366/98-07

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

Operations

- Operations preplanning, the prompt direction provided by operations supervision to decrease power, and the immediate response of the operating crew effectively mitigated a decreasing condenser vacuum transient that had the potential to cause a Unit 2 scram from a turbine trip that could have resulted from a low condenser vacuum condition (Section O1.3).

- The response to Residual Heat Removal Service Water and standby Plant Service Water system flow perturbations due to suspected flow blockage was appropriate. The root cause investigation was thorough and detailed and the results of the root cause investigation were logical. Management provided a focused attention to the issue for resolution (Section O2.3).

Maintenance

- A Non-Cited Violation was identified for a missed Technical Specification Surveillance for a quarterly channel calibration of the Unit 2 Reactor Building Exhaust Radiation Monitoring system. A lack of administrative controls resulted in an inappropriate surveillance frequency. The inspectors verified that the licensee's immediate corrective actions were timely and comprehensive. Long term corrective actions planned were to improve administrative controls for surveillance frequency changes (Section M3.2).

Plant Support

- Control room operators responded appropriately to plant transients and equipment failures as part of the emergency preparedness exercise. The exercise identified areas which have undergone improvements as well as those still needing improvements. Event classifications, plant status, and follow-up activities were communicated and coordinated with the Technical Support Center. Initial notifications were prompt and operators responded using appropriate procedures. The exercise objectives were met (Section P4.1).

Report Details

Summary of Plant Status

Unit 1 began the report period at 100% Rated Thermal Power (RTP). A planned power reduction to approximately 80% RTP was performed on November 22 for scram time testing and repairs on two scram pilot solenoid valves. Power was returned to 100% RTP the same day and the unit operated at this power level for the remainder of the report period, except for routine testing activities.

Unit 2 began the report period in a refueling outage. A reactor startup commenced on November 7, and the generator was synchronized to the grid on November 9. The maximum power achieved during the power uprate testing was 98% RTP. This power level was administratively identified as the Maximum Operating Power (MOP). Power was reduced to approximately 94% RTP on December 7 due to a partial loss of feedwater heating. Power was returned to MOP the same day following repair for the loss of feedwater heating problem. The unit operated at this power level for the remainder of the report period, except for routine testing activities.

I. Operations

O1 Conduct of Operations

O1.1 General Comments (71707)

The inspectors conducted frequent reviews of ongoing plant operations. On November 23, the inspectors observed two Unit 2 control board operators perform a shift turnover and identified no deficiencies. In general, the conduct of operations was professional and safety-conscious. Specific events and observations are detailed in the sections below.

O1.2 Unit 2 Drywell Closeout (71707)

The inspectors reviewed procedure 34GO-OPS-028-2S, "Drywell Closeout," Revision (Rev.) 7, Edition (Ed) 1, and accompanied operations and maintenance personnel into the Unit 2 drywell for a final walkdown prior to closeout in preparation for Unit 2 startup. The inspectors observed that all maintenance activities inside the drywell were complete except for some minor insulation restoration in the lower levels of the drywell. No deteriorated conditions of piping or equipment were observed. The inspectors observed both operations and maintenance personnel picking up loose trash and other foreign material during the walkdown. The inspectors verified that local valves associated with the "A" and "B" loops of the Core Spray systems were in their correct position.

The inspectors identified an unsecured stack of temporary steel cover plates stored on the 114 foot (') level of the drywell against the wall of the subpile room. The inspectors reviewed engineering documentation and confirmed that leaving the steel plates in the drywell during operation was acceptable.

The inspectors concluded that the licensee effectively implemented plant procedures for the final drywell closeout activities. This was evidenced by the removal of trash and other material and the conduct of a detailed walkthrough by Operations and Maintenance personnel.

O1.3 Unit 2 Startup, Power Ascension, and Extended Power Uprate Testing

a. Inspection Scope (71707)

The inspectors observed various portions of the reactor startup, power ascension and extended power uprate testing on Unit 2 following the refueling outage. The inspectors also reviewed the procedures relevant to the observed activities and held discussions with operations, engineering, and chemistry personnel.

b. Observations and Findings

The inspectors observed various portions of the reactor startup including initial control rod withdrawal to criticality, heatup, and power ascension. The inspectors observed reactor engineering personnel support of operations by obtaining thermal data, operating the Traversing Incore Probes (TIP) system, and making required adjustments to the Neutron Monitoring system. The inspectors were informed that 98% RTP (2708 Megawatt Thermal (MWT)) was the maximum expected power to be obtained during the current phase of power ascension testing due to existing limitations of the number four turbine stop valve.

On November 20, the inspectors observed the operating crew effectively respond to a decreasing condenser vacuum condition. As part of the heatup rate testing, selected cooling tower fans were being removed from service. As a result, the condenser cooling capability was reduced and vacuum began decreasing. Prior to the test activity, the operating crew discussed the possibility that vacuum could decrease and operations supervision directed that power be decreased if a decreasing vacuum condition occurred. Reactor power was reduced to about 72% RTP and the heat rate testing was terminated. Unit power was increased to 97% RTP upon recovery from the vacuum decrease transient.

c. Conclusions

Operations preplanning, the prompt direction provided by operations supervision to decrease power, and the immediate response of the operating crew effectively mitigated a decreasing condenser vacuum transient that had the potential to cause a Unit 2 scram from a turbine trip that could have resulted from a low condenser vacuum condition.

O2 Operational Status of Facilities and Equipment

O2.1 Engineered Safety Feature System Walkdown (71707)

The inspectors used Inspection Procedure 71707 to walk down accessible portions of the Plant Service Water (PSW) system to assess material condition, system and component alignment, and normal system operating parameters. Equipment operability, material condition, system and component alignment, and operating parameters were acceptable. The inspectors identified no substantive concerns as a result of the walkdown.

O2.2 Unit 2 Isolation of Reactor Water Cleanup (RWCU) During Heat Exchanger Maintenance (93702) (92901) (92903)

On November 1, while draining water from an RWCU heat exchanger, a system isolation occurred due to a high differential flow condition. The outboard suction isolation valve, 2G31-F004, closed as required; however, the inboard isolation valve, 2G31-F001, did not. The licensee could not initially explain why the 2G31-F001 valve did not close and elected to report the event.

Engineering personnel reviewed the logic circuit and determined that the high differential flow isolation signal was provided to the valves via different circuits. The high flow setpoint for the 2G31-F001 was slightly higher than the setpoint for the 2G31-F004 valve. The licensee reviewed system operating data and concluded that the differential flow did not meet the conditions required by the 2G31-F001 valve to isolate.

The inspectors reviewed the applicable electrical logic diagrams and discussed the occurrence with the RWCU system engineer. The inspectors concluded that the engineers review was thorough and detailed and that the overall assessment of the valves performance was acceptable.

O2.3 Debris In Intake Structure Affecting Unit 2 Shutdown Cooling

a. Inspection Scope (71707) (37551)

The inspectors monitored the licensee's response to indications of clogging of the Unit 2 Residual Heat Removal Service Water (RHRSW) and standby PSW pumps.

b. Findings and Observations

On November 3, several flow and pressure perturbations on the Unit 2 RHRSW and standby PSW systems were received. The RHRSW loop was operating in the shutdown cooling mode at the time of this problem. The standby PSW pump normally supplies cooling water to Diesel Generator 1B and was also in service at the time of the problem. The operators observed a decreasing flow and discharge pressure on the running RHRSW pump. Another pump was started and the first secured, with similar results. Additionally, the standby PSW pump discharge pressure decreased. After several pump

swaps for the RHRSW system the perturbations stopped. Although the unit PSW pumps share the same intake structure they were not affected. The inspectors observed that the RHRSW and standby PSW pumps take suction form a slightly different location in the intake structure than the unit PSW pumps. Additionally, the standby PSW pump is smaller in size and capacity than the RHRSW and unit PSW pumps.

The licensee subsequently removed some debris from the discharge strainer of the RHRSW pumps. In addition, divers surveyed the intake pit and found only a small amount of debris in the area of the pumps suction. The licensee initiated a significant occurrence report (SOR) to determine the root cause and implement corrective action.

Although the root cause determination had not been completed at the close of this report period, the licensee concluded that the most likely cause of the flow perturbations was debris being drawn into the pump suction. The licensee proposed that the problem was not observed on the larger PSW pumps because they have a larger suction and were capable of passing the debris to the discharge strainers where it was collected. Subsequently, the collection of leaves were drawn into the RHRSW pumps which have a smaller suction bell and a lower flow rate. The leaves were not able to pass through the pump and restricted flow. When the A and C RHRSW pumps were swapped the leaves were transferred from one operating pump to the other. Multiple starts and stops resulted in the leaves being dispersed into smaller clumps until they were small enough to pass through the pumps. The licensee was still investigating how the leaves passed through the traveling screen.

The inspectors reviewed the system operating data, piping diagrams, and performed a system walkdown. No deficiencies were identified. In addition, the inspectors attended a Plant Review Board meeting which proposed short term corrective actions. The inspectors reviewed the proposed corrective actions and applicable safety evaluation and noted no inconsistencies or discrepancies with the Updated Final Safety Analysis Report (UFSAR). Examples of short term corrective actions included inspection and cleaning of the pump suction pit, establishing a frequency for starting and stopping the pumps, and increased frequency of inspection and rotation of the pump suction area traveling screens to clear debris. Long term corrective actions may include possible system modifications to prevent debris from entering the pump suction area. The inspectors concluded that the licensee's root cause determination was acceptable.

c. Conclusions

The inspectors concluded that the licensee's response to RHRSW and standby PSW system flow perturbations were appropriate. The root cause was thorough and detailed and the results of the root cause investigation were logical. Management provided a focused attention to the issue for resolution.

O2.4 Cold Weather Checks and Freeze Protection (71707) (71714) (62707)

The inspectors verified the licensee had completed implementation of Preventive Maintenance Procedure 52PM-MEL-005-0S, "Cold Weather Checks," Rev. 9, Ed. 1. The procedure ensured that the systems which provide cold weather protection for various systems were operational. The inspectors verified that those items previously identified by the licensee as defective, had been repaired. In addition, the inspectors walked down portions of the freeze protection systems throughout the plant and verified that the systems were in operation. The inspectors reviewed electrical drawings for the heat tracing associated with the PSW system and no deficiencies were identified.

The inspectors reviewed the licensee's procedures for response to cold weather. The inspectors determined that additional checks of plant equipment are required to be made when the outside temperature is expected to drop below 40 degrees F. These checks are to be performed by Operations personnel and are delineated in Department Instruction DI-OPS-36-0989N, "Cold Weather Checks," Rev. 10.

The inspectors concluded that the licensee had effectively implemented the applicable elements of the cold weather checks and freeze protection procedures. Procedures included compensatory measures to be completed for cold weather conditions.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments (62707)

The inspectors observed all or portions of selected maintenance work order activities and found that the work was conducted in a professional and thorough manner. Work packages were present and documentation was complete. Workers were knowledgeable of the work scope and precautions to be used in performing tasks. Radiation protection and safety measures were exercised where appropriate.

M3 Maintenance Procedures and Documentation

M3.1 Surveillance Activities (61726)

The inspectors observed all or portions of selected Unit 1 and Unit 2 Technical Specification (TS) surveillance activities. The inspectors observed that procedures were correctly used; supervisors provided necessary direction and oversight; and procedure and TS acceptance criteria were met. No deficiencies were identified.

M3.2 Missed TS Surveillance on Unit 2

a. Inspection Scope (61726) (62707)

The inspectors reviewed Surveillance procedure 57SV-CAL-008-2S, "Reactor Bldg Vent Radiation & ARM System," Rev. 5, Ed 2, and TS Surveillance Requirement (SR) 3.3.6.2.3, for performance of channel calibration at a frequency of 92 days. Additionally, discussions were held with licensee's maintenance, engineering, and licensing support personnel.

b. Observations and Findings

On November 17, the licensee discovered that the channel calibration for the reactor building exhaust radiation monitors was not being performed quarterly as required by TS SR 3.3.6.2.3. The surveillance frequency was not revised when the improved TS's were implemented. The licensee determined that the change request necessary to make the revision had been initiated but had not been processed. The change request process did not include a review or verification to ensure completion of the appropriate paperwork.

The licensee's immediate corrective actions for the problem included the successful performance of the channel calibration within two hours of the discovery that the surveillance was missed and updating and revising the surveillance scheduling database. These immediate corrective actions were verified by the inspectors.

Long term corrective actions included the implementation of administrative controls for the surveillance scheduling database that will provide a means of ensuring that revision requests, once initiated, will be tracked until dispositioned. The licensee also verified a number of similar, more restrictive surveillances affected by the improved TS implementation to ensure the surveillance frequency was correct. No deficiencies were identified.

The inspectors performed a review of integrated inspection reports and Licensee Event Reports (LERs) for the past two years. The inspectors did not identify any previous similar missed TS event during the review whereby the corrective actions would have reasonably prevented the occurrence of this event.

This non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation (NCV), consistent with Section VII.B.1 of the NRC Enforcement Policy. It is identified as NCV 50-366/98-07-01, Missed Technical Specification Surveillance for Unit 2 Reactor Building Exhaust Radiation Monitors.

c. Conclusions

An NCV was identified for a missed TS surveillance for a quarterly channel calibration of the Unit 2 Reactor Building Exhaust Radiation Monitoring system. A lack of administrative controls resulted in an inappropriate surveillance frequency. The

inspectors verified that the licensee's immediate corrective actions were timely and comprehensive. Long term corrective actions planned were to improve administrative controls for surveillance frequency changes.

III. Engineering

E8 Miscellaneous Engineering Issues (92903)

E8.1 (Closed) Unresolved Item (URI) 50-321, 366/97-07-02: Resolution of Concerns With Respect to Generic Letter (GL) 87-02, Pending Subsequent Review of Licensee Submittal in Response to Unresolved Safety Issue (USI) A-46.

The inspectors reviewed the licensee's April, 1998 response related to the incorporation of the A-46 Generic Implementation Procedure (GIP) as the seismic licensing basis for new and replacement equipment at Plant Hatch, for equipment not specifically covered by the GIP. Although the licensee had revised the UFSAR prior to receiving a Plant Hatch-specific safety evaluation for GIP application, the inspectors determined that the 10 CFR 50.59 evaluation performed to support the revision was sufficient to determine that no unreviewed safety questions existed in the licensee's application of the GIP. The inspectors confirmed that the licensee had not implemented the GIP methodology for an actual plant modification. Further guidance was provided by NRC in June, 1998 regarding the application of the GIP methodology in plant licensing bases. Subsequently, a Plant Hatch-specific safety evaluation report (SER) was issued in September, 1998 to allow use of the GIP for new and replacement equipment.

Additionally, the inspectors determined that the licensee's intent to defer revising the UFSAR until receipt of a plant-specific SER supporting GIP application did not constitute a formal licensing commitment. Therefore, no deviation or violation of regulatory requirements occurred. The inspectors determined that the licensee's approach to this issue was appropriate.

IV. Plant Support

P4 Staff Knowledge and Performance in Emergency Preparedness

P4.1 Emergency Preparedness (EP) Exercise (71750)

On December 3, the inspectors observed and evaluated the licensee's EP exercise. The inspectors monitored selected activities in the Operations Support Center (OSC) and the Emergency Operating Facility (EOF). The EP scenario challenged operators and EP drill participants to the extent that an Alert, Site Area Emergency, and General Emergency were declared. The Technical Support Center (TSC), OSC, and EOF were staffed and activated within the required time and in accordance with applicable procedures. The inspectors observed that command and control and status board updates were

appropriate. The inspectors also concluded that the TSC staff members were effective in their analysis of plant conditions and the implementation of protective action recommendations. A site evacuation was correctly declared and personnel accountability was completed within the required time.

The inspectors observed and evaluated operator actions from the simulated control room. Control room operators responded appropriately to plant transients and equipment failures as part of the exercise. The exercise identified areas which have undergone improvements as well as those still needing improvements. Event classifications, plant status, and follow-up activities were communicated and coordinated with the TSC. Initial notifications were prompt, and operators responded using appropriate procedures. The inspectors concluded that the EP exercise objectives were met.

S2 Status of Security Facilities and Equipment

S2.1 The inspectors toured the protected area and observed that the perimeter fence was intact and not compromised by erosion nor disrepair. Badge issuance was observed, as was the process for escorting of visitors. Vehicles were searched, escorted and secured as described in the applicable procedures. The inspectors concluded that the areas of security inspected met the requirements of the security plan and applicable procedures.

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 December 17, 1998. 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.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

Anderson, J., Unit Superintendent
Betsill, J., Assistant General Manager - Operations
Curtis, S., Unit Superintendent
Davis, D., Plant Administration Manager
Fornel, P., Plant Modifications & Maintenance Support Manager
Fraser, O., Safety Audit and Engineering Review Supervisor
Googe, M., Performance Team Manager
Hammonds, J., Engineering Support Manager
Kirkley, W., Health Physics and Chemistry Manager
Lewis, J., Training and Emergency Preparedness Manager

Madison, D., Operations Manager
Moore, C., Assistant General Manager - Plant Support
Reddick, R., Site Emergency Preparedness Coordinator
Roberts, P., Outage and Planning Manager
Thompson, J., Nuclear Security Manager
Tipps, S., Nuclear Safety and Compliance Manager
Wells, P., General Manager - Nuclear Plant

Other licensee employees contacted included office, operations, engineering, maintenance, chemistry/radiation, and corporate personnel.

INSPECTION PROCEDURES USED

IP 37551:	Onsite Engineering
IP 61726:	Surveillance Observations
IP 62707:	Maintenance Observations
IP 71707:	Plant Operations
IP 71750:	Plant Support Activities
IP 92901:	Followup - Plant Operations
IP 92902:	Followup - Maintenance
IP 92903:	Followup - Engineering
IP 93702:	Prompt Onsite Response to Events at Operating Power Reactors

ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

50-366/98-07-01	NCV	Missed Technical Specification Surveillance for Unit 2 Reactor Building Exhaust Radiation Monitors (Section M3.2).
50-321, 366/97-07-02	URI	Resolution of Concerns With Respect to GL 87-02, Pending Subsequent Review of Licensee Submittals in Response to Unresolved Safety Issue (USI) A-46 (Section E8.1).