UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

Report No.: 50-261/93-11

Licensee: Carolina Power and Light Company
P. O. Box 1551
Raleigh, NC 27602

Docket No.: 50-261 License No.: DPR-23

Facility Name: H. B. Robinson Unit 2

Inspection Conducted: May 15 - June 11, 1993

Lead Inspector: _____ 6/30/93
W. T. Orders, Senior Resident Inspector Date Signed

Other Inspectors: L. W. Garner, Senior Resident Inspector
C. R. Ogle, Resident Inspector

Approved by: _____ 6/30/93
H. O. Christensen, Section Chief Date Signed
Division of Reactor Projects

SUMMARY

Scope:

This routine, unannounced inspection was conducted in the areas of operational safety verification, surveillance observation, maintenance observation, meetings with local officials, and followup.

Results:

A violation with two examples was identified involving: failure to follow procedures regarding a heat trace circuit which remained in alarm for approximately 6 hours, and failure to follow procedures during the performance of an operations surveillance test when control room operators altered the chemical volume control system operation and configuration outside the scope of the procedure without initiating a temporary procedure change or discussing their actions with the shift supervisor (paragraph 3).

Another violation was identified for failing to report to the NRC, within 4 hours of notification of South Carolina Department of Health and Environmental Control authorities, that weir discharge temperature limits had been exceeded. (paragraph 3).

A third violation was identified for failure to properly maintain procedure CM-008, Steam Driven Auxiliary Feedwater Pump, Turbine, and Auxiliaries Maintenance, in that a precaution to verify the turbine overspeed trip setpoint following maintenance had been erroneously deleted (paragraph 4).

An unresolved item was identified concerning the potential inoperability of the boric acid storage tanks involving indications of temperatures less than the Technical Specification minimum (paragraph 3).

Another unresolved item was identified for the artificial temperature offset required to force the boric acid heat trace annunciators to alarm at the nominal setpoints and for the two boric acid heat trace indication circuits which were discovered to be disabled (paragraph 5).

A third unresolved item was identified concerning the degradation of the A emergency diesel generator ventilation system involving a damper that had been manually blocked open (paragraph 3).

A weakness was identified, in that the annunciator panel procedure for a boric acid heat trace trouble alarm failed to provide actions for a high temperature condition (paragraph 3).

Another weakness was identified, in that the calibration procedures for reactor coolant system water level instruments failed to include a functional test of the control room alarm (paragraph 6).

REPORT DETAILS

1. Persons Contacted

*R. Barnett, Manager, Projects
C. Baucom, Senior Specialist, Regulatory Compliance
D. Bauer, Regulatory Compliance Coordinator, Regulatory Compliance
*S. Billings, Technical Aide, Regulatory Compliance
B. Clark, Manager, Maintenance
*T. Cleary, Manager, Technical Support
D. Crook, Senior Specialist, Regulatory Compliance
*C. Dietz, Vice President, Robinson Nuclear Project
R. Downey, Shift Supervisor, Operations
*J. Eaddy, Manager Environmental and Radiation Support
S. Farmer, Manager, Engineering Programs, Technical Support
R. Femal, Shift Supervisor, Operations
W. Flanagan Jr., Acting Plant General Manager
*W. Gainey, Manager, Plant Support
*J. Harrison, Manager, Regulatory Compliance
B. Harward, Manager, Engineering Site Support, Nuclear Engineering Department
P. Jenny, Manager, Emergency Preparedness
D. Knight, Shift Supervisor, Operations
A. McCauley, Manager, Electrical Systems, Technical Support
R. Moore, Shift Operations Coordinator, Operations
D. Morrison, Shift Supervisor, Operations
*C. Olexik, Manager, Plant Assessment Department
A. Padgett, Manager, Environmental and Radiation Control
D. Seagle, Shift Supervisor, Operations
M. Scott, Manager, Performance Engineering, Technical Support
E. Shoemaker, Manager, Mechanical Systems, Technical Support
W. Stover, Shift Supervisor, Operations
*A. Wallace, Acting Operations Manager
*D. Waters, Manager, Regulatory Affairs
*A. Whitehead, Manager Plant Support Services
D. Winters, Shift Supervisor, Operations

Other licensee employees contacted included technicians, operators, engineers, mechanics, security force members, and office personnel.

NRC Management Visits

H. Christensen, Chief, Projects Section 1A, Division of Reactor Projects, visited the site on June 9 and 10, 1993. Mr. Christensen toured the facility with the residents and attended the meetings with the local officials. He also met with the licensee's Manager of Project Management.

*Attended exit interview on June 17, 1993.

Acronyms and initialisms used throughout this report are listed in the last paragraph.

2. Plant Status

The unit began the report period operating at full power and continued operation at or near full capacity until approximately 12:40 p.m., on the afternoon of May 25. At that time, the licensee initiated a power decrease to 60 percent to reduce the circulation/service water discharge temperature to Lake Robinson in order to comply with the NPDES permit. Unit operation was limited to 60 percent power for the rest of the month of May. On June 2, following repair of a leaking air fitting on one of the main feedwater regulating valves and after an increase in allowable weir discharge limits under the NPDES permit, power was increased to 100 percent. The unit operated at full power for the remainder of the report period. At the end of this report period, the unit had completed 260 days of continuous operation.

3. Operational Safety Verification (71707)

The inspectors evaluated licensee activities to confirm that the facility was being operated safely and in conformance with regulatory requirements. These activities were confirmed by direct observation, facility tours, interviews and discussions with licensee personnel and management, verification of safety system status, and review of facility records.

To verify equipment operability and compliance with TS, the inspectors reviewed shift logs, Operations records, data sheets, instrument traces, and records of equipment malfunctions. Through work observations and discussions with Operations staff members, the inspectors verified the staff was knowledgeable of plant conditions, responded properly to alarms, adhered to procedures and applicable administrative controls, cognizant of in-progress surveillance and maintenance activities, and aware of inoperable equipment status. The inspectors performed channel verifications and reviewed component status and safety-related parameters to verify conformance with TS. Shift changes were routinely observed, verifying that system status continuity was maintained and that proper control room staffing existed. Access to the control room was controlled and operations personnel carried out their assigned duties in an effective manner. Control room demeanor and communications were appropriate.

Plant tours and perimeter walkdowns were conducted to verify equipment operability, assess the general condition of plant equipment, and to verify that radiological controls, fire protection controls, physical protection controls, and equipment tagging procedures were properly implemented.

Failure To Make Timely NRC Notification

On the morning of May 25, 1993, the inspectors were advised by the Manager of Regulatory Compliance of a pending notification to State of South Carolina authorities for weir discharge temperatures in excess of NPDES permit limits. During this initial conversation, the inspectors

questioned the licensee relative to the need for a 4-hour non-emergency notification to the NRC in accordance with 10 CFR 50.72 (b)(2)(vi). Later that day, in response to a licensee request, the inspectors contacted the NRR project manager responsible for Robinson to obtain confirmation that an NRC notification should be made if the State was notified of this event. On the morning of May 26, 1993, the inspectors relayed the conclusion of the NRR project manager's investigation to the licensee, which was that a 4-hour non-emergency notification was required.

At 12:53 p.m., on May 26, 1993, the licensee made an information only call to the NRC. In that call, the licensee provided information on six daily maximum weir discharge temperature excursions above the 98.6 °F NPDES permit limit. These excursions occurred from May 15, 1993, to May 20, 1993. Additionally, the licensee also provided information on compensatory measures taken as a result of the elevated weir discharge temperatures. These measures included reducing Unit 2 power to 60 percent and taking Unit 1 off line. During subsequent discussions with the inspector, the licensee indicated that the original intention was to transmit the information to the HDO to satisfy the requirements of 10 CFR 50.72 (b)(2)(vi). However, after discussions with the HDO and in the absence of knowledge that formal written notification to the State had been made from the licensee's corporate office, the report was communicated to the NRC as "info only".

Following this notification, the inspectors requested clarification from the licensee of information provided from CP&L corporate (Environmental Services) to South Carolina state officials. As a result of this request, site personnel determined that a letter detailing the temperature excursions in excess of the NPDES permit limits had been transmitted from CP&L corporate offices to South Carolina state officials on the evening of May 25, 1993. Accordingly, at 4:45 p.m., on May 26, 1993, the licensee made a 4-hour non-emergency notification to the NRC in accordance with 10 CFR 50.72 (b)(2)(vi) documenting this correspondence. The failure to make a timely notification to the NRC documenting notification of State authorities of excessive weir discharge temperatures is considered a violation. VIO: 93-11-01, Failure To Make A Timely Notification To The NRC Of A Notification To State Authorities.

On June 2, 1993, CP&L Corporate Environmental Services advised the State of South Carolina that the weir discharge limit for the month of May was exceeded. This was followed by a 4-hour non-emergency notification in accordance with 10 CFR 50.72 (b)(2)(vi). The inspectors determined that this notification was made within the required time frame.

Failure To Follow Procedures

[Boric Acid Heat Trace Circuit 1 In Alarm]

At 8:30 a.m., on May 20, 1993, the inspectors noted that the local annunciator for heat trace circuit 1 was in alarm, indicating a high

temperature situation of approximately 207° F. This circuit provides heat trace protection for the suction and discharge piping associated with BATP B between valves CVC-379, CVC-341, CVC-334, and CVC-336. After the inspectors questioned the operator about the alarm, the associated piping was cooled and the alarm cleared by recirculating the contents of BAST B. Following the recirculation, the temperature of the circuit again rose to greater than 200° F. A subsequent adjustment to the circuit's thermostat by I&C personnel restored heat trace circuit 1 to normal operation.

In response to the inspectors' questions, the on-shift, inside AO stated he was aware that the circuit was in alarm, but had been unable to investigate the cause of the alarm since turnover (about 90 minutes before). The inspectors reviewed the strip chart recording of the circuit's temperatures and determined that it had been at or near the alarm setpoint since 2:45 a.m. that morning. The strip chart recording had been reviewed and initialed 4 times by two different operators during the 6-hour period the high temperature alarm existed before the condition was questioned by the inspectors. The previous shift inside AO and shift supervisor stated that they were both aware of the alarm condition. However, they erroneously attributed the alarm to residual heat from the motor/pump generated from the performance of OST-107, Boric Acid Blender Control, Valve and Pump Operation, which had been conducted earlier on their shift. The previous shift AO and shift supervisor also stated that the temperature of the circuit declined near the end of the shift. From the stripchart, the inspectors determined that the temperature of the circuit did decrease approximately 2 degrees from about 3:30 a.m. to 7:00 a.m., on May 20, 1993. However, a degree of this change appeared to be an offset which occurred coincident with the change in the stripchart paper at 6:20 a.m. The prior shift inside AO and shift supervisor acknowledged that they had taken no action to determine the cause of the alarm or to reduce the temperature of heat trace circuit 1 after the high temperature condition occurred. Furthermore, the inspectors determined that the condition was not noted in either the AO's logs or the shift supervisor's logs. Additionally, no turnover was conducted on this item with the oncoming shift.

The inspectors reviewed the guidance available to Operations personnel for alarms on boric acid heat trace circuits. A portion of this guidance was in the form of an E-Mail memo to the shifts from the Shift Operations Coordinator dated April 19, 1993. That guidance required that inside AOs evaluate and initial heat trace chart recordings every 2 hours. This E-mail also discussed applying the appropriate LCO for TS circuits in alarm. However, the E-mail focused on heat trace circuit alarms for low temperature. Annunciator procedure APP-036-H2 provided operator actions for Boric Acid Heat Trace Trouble Alarms on panel APP-036. Step 2 of this procedure requires the operator to determine the reason for the abnormality and gives examples of deficiencies which could result in alarms on heat trace circuits. As in the E-Mail memo, the majority of actions of APP-036-H2 are directed at resolving low temperature conditions.

OMM-001, Operations-Conduct of Operations, Section 5.9.2, Annunciator Panel Procedure Guidelines, requires that "when the diagnosis of the alarm concludes that the actions listed in the APP are not appropriate, then the existing plant conditions, diagnosis conclusion, and the actions taken shall be logged." Additionally, OMM-001, Section 5.16, Local Panel Indication, states: "Corrective action should be initiated on local controls and indications to ensure proper system operation." The failure of Operations personnel to determine the cause of the alarm as required by APP-036-H2; to document their conclusions regarding the alarm as required by OMM-001; and to take corrective actions as specified by OMM-001 constitutes a violation for failure to determine cause, log the diagnosis of, and take corrective actions for the heat trace circuit 1 alarm condition. This event denotes one of two examples which collectively comprise VIO: 93-11-02, Failure To Follow Procedures For a Heat Trace Circuit In Alarm/Failure To Follow Procedure During Performance Of OST-254.

As discussed above, APP-036-H2 primarily addressed low temperature alarm conditions on boric acid heat trace circuits. The failure of APP-036-H2 to provide actions for a high temperature condition is considered a weakness.

[Residual Heat Removal System Leak Check]

On May 27, 1993, while performing a routine leak test surveillance of the RHR system, control room operators determined that valve HCV-142 (RHR To Letdown Line Isolation Valve) would not open after they had adjusted letdown pressure to 350 psig as required by applicable procedure OST-254, Residual Heat Removal System and RHR Loop Sampling System Leak Test. The air operated valve was visually examined and it was found that although it had a full open signal, as evidenced by local air pressure indications, the valve was closed. The operators discussed the issue amongst themselves and concluded that the valve's failure to open was probably attributed to the 350 psig pressure differential across it. Accordingly, after they referred to steam tables, the operators concluded that letdown pressure could be reduced to 104 psig without flashing the system. They theorized that this lower pressure would allow the valve to open.

Without consulting the shift supervisor or processing a temporary procedure change, the operators reduced letdown pressure until valve HCV-142 opened. The pressure was then returned to 350 psig and that portion of the test completed. The actions taken to reduce pressure to accomplish the test were then discussed with the shift supervisor. At the shift supervisor's direction, a temporary change to the procedure was developed and the test completed.

This act not only constituted a failure to follow procedure OST-254, but was in violation of Technical Specification 6.1.1.5 which specifies the requirements for making temporary procedure changes.

Technical specification 6.5.1.1, Procedures, Tests and Experiments, requires in part that written procedures be established, implemented, and maintained concerning the activities delineated in Appendix A of Regulatory Guide 1.33, Rev. 2, February 1978, which in turn specifies in parts 1.d, 3.d, and 3.n procedures for procedure adherence, temporary procedure changes, operation of the emergency core cooling system, and operation of the chemical and volume control system, respectively.

Administrative procedure AP-006, Procedure Adherence, states in section 5.1 that adherence to approved plant operating procedures is mandatory. Section 5.2 delineates the only three mechanisms through which a deviation from an approved procedure can occur; those being either a permanent procedure change, a temporary procedure change or in an emergency situation, a "deviation." In this particular situation, in as much as the evolution was not an emergency situation, a temporary procedure change appears to have been appropriate.

Technical specification 6.5.1.1.5 requires that temporary changes to procedures, tests or experiments be approved by two members of the plant staff, at least one of whom holds a Senior Reactor Operator License. The temporary change must be documented and reviewed within 21 days to determine if the change constitutes an unreviewed safety question.

Contrary to the above, on May 27, 1993, control room operators did not follow OST-254, in that when they were unsuccessful in getting valve HCV-142 to open when performing step 16 of section 7.1, they altered CVCS operation and configuration in an attempt to open the valve. This was done outside the scope of the applicable procedure and without initiating a temporary procedure change or discussing it with the shift supervisor.

The above event constitutes the second example of failure to follow procedures identified in this report which collectively comprise Violation 93-11-02, Failure To Follow Procedures For a Heat Trace Circuit In Alarm/Failure To Follow Procedure During Performance Of OST-254.

Feedwater Regulating Valve Air Line Leak

On May 31, 1993, with the Unit at 60 percent power, a steam flow-feed flow mismatch occurred as a result of the C feedwater regulating valve (FCV-498) beginning to fail closed. In response to this annunciated alarm condition, the operators took remote manual control of the valve in accordance with AOP-010, Inadequate Feedwater Flow. Following repairs to stop a leak on an air line to the valve's positioner, the valve was restored to automatic control on June 1, 1993.

The inspectors reviewed a stripchart of steam generator parameters recorded during the transient and discussed the transient with operations personnel. The inspector concluded that prompt operator actions probably minimized the consequences of the transient.

The inspectors witnessed portions of the troubleshooting and repair efforts performed to return the valve to service. Specifically, the inspectors witnessed a torque check of the C feedwater regulating valve lock bar capscrews in accordance with WR/JO 93HTY008. This check was accomplished without incident. In addition, the inspectors were present for the tightening of a plug on a tee connection in the air line to the valve's positioner (accomplished per WR/JO 93AFZL). The inspectors also attended the pre-job brief conducted for this evolution and witnessed control room activities coincident with the repair. The inspectors concluded that the appropriate precautions were taken and that the evolution was well-conducted.

As a part of the post-maintenance inspection efforts, the inspectors reviewed a safety analysis dated October 18, 1987, approving the practice of placing a feedwater regulating valve in local manual control; thereby, defeating a feedline isolation signal for the valve. This same approach was used for the repairs on June 1, 1993, to minimize the possibility of a plant transient as a result of the repair efforts. The conclusion of the analysis was based on a review of the steam break analysis assuming that the feedwater regulating valve fails to close. Isolation of the feedline is provided by the feedwater header section valves. The inspectors have no further questions on the transient or the repair efforts.

Boric Acid Storage Tank Inoperability

On Monday, May 31, 1993, an operator noted low temperature alarms for boric acid heat trace circuitry coincident with the recirculation of both the A and B BASTs. Low temperature alarms were received for heat trace circuits 3 (BATP B discharge), 35 (BAST B discharge), 7 (piping downstream of BAST B recirculation valve HCV 105), and 8 (piping downstream of BAST A recirculation valve HCV 110). The fact that these low recirculation piping temperatures could indicate temperatures less than the TS minimum for the BASTs was recognized by the operators. The observed heat trace circuit performance and the concerns on BAST operability were communicated to the system engineer by the operators in an E-mail message dated May 31, 1993. On Tuesday, June 1, 1993, the inspectors questioned Operations management on the need for an operability determination based on the potential for BAST temperatures of less than 145°F. At 5:00 p.m. that afternoon, the licensee entered a 72-hour operability determination in accordance with OMM-039, Operability Determination. The determination was completed at 4:00 p.m. on June 2, 1993, and concluded that both trains of the boric acid flowpath had been inoperable for an unknown period of time. The determination also concluded that the recirculation restored the tanks to an operable condition. It was also noted in the operability determination that recirculation at an interval of less than 5 hours would prevent the low temperature excursions during recirculation of the BASTs. Following the operability determination, the licensee instituted a 4-hour recirculation schedule, with temperatures monitored by operations personnel, for the in-service BAST A. This tank was sufficient to satisfy TS requirements for boric acid inventory. At this

recirculation frequency, no additional temperature excursions below 145° were observed in the in-service BAST A recirculation flowpath. The recirculation frequency of BAST B was varied, while observing temperatures in the recirculation flowpath, in an effort to extend the recirculation interval and determine the cause of the temperature excursions. At the end of the inspection period, the licensee was recirculating BAST B every 4 hours.

Temperatures of the piping in the recirculation path for BASTS A and B were observed by ETS personnel during recirculation on June 2, 1993. Data was collected to determine if temperatures less than 145° occurred in any leg of the recirculation piping. The inspectors witnessed the data gathering, observed temperatures on the heat trace strip chart recorder, and independently reviewed plots of the observed temperatures. The minimum temperatures indicated on any segment were 142°F for the A flowpath and 138°F for the B flowpath. This occurred with the BASTs indicating approximately 163°F. No temperatures were observed on any segment of piping below the precipitation point for the existing concentrations in the BASTs. When the recirculations were repeated 5 hours later, no temperature in either flowpath dropped below the 145°F TS limit for the BASTs.

At the end of the inspection period, the licensee was attempting to address the issue of past inoperability of the boric acid system. Pending the completion of the licensee's operability determination, this item remains unresolved. URI: 93-11-03, Potential Inoperability Of The Boric Acid Storage Tanks.

Inadequate Engineering Analysis

On June 5, 1993, an engineering supervisor provided the inspectors with a written analysis of a B BAST pump performance test performed on June 4, 1993. The test had been performed to address questions regarding the potential for boric acid precipitate buildup in the BAST discharge lines during previous low temperature conditions in the BAST. During the review of this material, the inspectors noted that the percentage change of the measured pump discharge pressure from the manufacturer's pump curve had been used to adjust the measured pump discharge flow to determine the pump flow rate at design conditions. However, since the pump curve in the region of interest indicated that each foot change in pump head would result in more than a 2 gpm increase in flow, the percentage change in head was not the correct factor to utilize in projecting the pump flow at design conditions. The evaluation of the test data was technically incorrect. This was discussed with the engineering supervisor. Later, the inspectors were presented with a technically acceptable analysis; however, the results of this revised analysis could not be used to conclusively demonstrate that precipitation had not occurred. At the end of the report period, the licensee was evaluating other information which would address the question. The issue of temperatures below the precipitation point for the boric acid solution will be resolved in the inspectors' review of URI 93-11-03.

Degraded Diesel Generator Ventilation System

On June 10, 1993, during the performance of bi-weekly surveillance test OST-401 on the A EDG, licensee personnel observed that the room ventilation air return damper was partially open when it was to have been closed. The damper is designed to automatically close when the ambient air temperature is above 55°F. With the damper partially open, the efficiency of the ventilation system was degraded. The licensee found that the damper had been manually blocked open by a wooden wedge which had apparently been manufactured for the purpose. The licensee is currently evaluating the impact of this illicit modification on the system's ability to perform its intended safety function. Pending the completion of that evaluation, this issue will remain unresolved. URI: 93-11-04, Degraded Diesel Generator Ventilation System.

Two violations were identified.

4. Surveillance Observation (61726)

The inspectors observed certain safety-related surveillance activities on systems and components to ascertain that these activities were conducted in accordance with license requirements. For the surveillance test procedure addressed below, the inspectors determined that precautions and LCOs were adhered to, the required administrative approvals and tagouts were obtained prior to test initiation, testing was accomplished by qualified personnel in accordance with an approved test procedure, test instrumentation was properly calibrated, and that the test conformed to TS requirements.

Specifically, the inspectors witnessed/reviewed portions of OST-202, Steam Driven Auxiliary Feedwater System Component Test (Monthly). During post-OST discussions with Engineering Tech Support personnel, the requirement to test the turbine overspeed trip mechanism following certain maintenance activities was discussed. Based on the results of these discussions, the inspectors reviewed ONS Action Item Number 90-010. This item specified that CM-008 (Steam Driven Auxiliary Feedwater Pump, Turbine, and Auxiliaries Maintenance) be revised to include a precaution to test the turbine overspeed trip setpoint following renewal of the trip striker pin or striker spring. This ONS action item was derived from SOER 89-01. The action item was accomplished through Revision 8 to CM-008, on August 23, 1990. However, the inspectors noted that the precaution was not contained in the current revision of CM-008. Based on an interview of the Manager of Maintenance Support Programs, the inspectors learned that the precaution was erroneously deleted from the procedure during Revision 12 to CM-008. This revision became effective on November 25, 1992, and was accomplished as part of the procedure upgrade program. The fact that the precaution was the result of an ONS action item was not clear since Revision 8 to CM-008 failed to reference this commitment as required by AP-004, Procedure Control. After the erroneous deletion was identified, the licensee revised CM-008 to include the appropriate precaution on testing the turbine overspeed

device and promptly initiated a review of all safety-related maintenance procedures to ensure their accuracy.

The licensee concluded from their investigation of this error that no maintenance had been performed on the turbine overspeed mechanism since Revision 12 to CM-008 had been made. The inspectors independently reviewed a computerized listing and brief description of all maintenance performed on the AFW system since 1991 and concurred with the licensee's observation. Thus, the inspectors concluded that the safety significance of the deletion was minimal.

This event is similar in nature to an event addressed in NCV 93-05-03. In that particular situation, a procedure step which had been implemented in response to a Violation, was erroneously deleted during a later revision to the procedure. The corrective actions associated with NCV 93-05-03 included a review of all safety-related maintenance procedures to ensure that procedure revisions which had been made pursuant to commitments or corrective actions taken as a result of previously identified findings, were still embodied in the procedures. The corrective actions taken at that time did not, however, include a review of those procedures to verify that previous procedure revisions implemented to include external inputs such as derived from industry experience, SOERs, IENs, etc., were still incorporated. Indeed, as referenced above, the requirement to test the turbine overspeed trip setpoint following renewal of the trip striker pin or striker spring had its genesis in SOER 89-01. Accordingly, the licensee's review failed to detect the erroneous deletion.

Technical Specification 6.5.1.1.1.a. requires that procedures be maintained for activities referenced in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Appendix A, Item 9 requires written procedures for maintenance that can affect the performance of safety-related equipment. CM-008 provides maintenance instructions for the steam driven auxiliary feedwater pump. During revision 12 to CM-008, the precaution to test the overspeed mechanism following renewal of the trip striker pin or striker spring was erroneously deleted. The failure to properly maintain CM-008 is a violation. VIO: 93-11-05, Failure To Properly Maintain Maintenance Procedure CM-008.

During the course of this inspection, the inspectors noted that Operations Surveillance Test procedure OST-202, Steam Driven Auxiliary Feedwater System Component Test, required that the turbine mechanical overspeed trip device be exercised before the pump was run for the test. The inspectors were concerned that this practice constituted predispositioning of the equipment, similar to stroking a valve prior to performing a valve stroke test. After discussing this issue with the licensee, they initiated a review of the history associated with

performing the mechanical overspeed trip mechanism test, and elected to revise the procedure to require the test be performed once per refueling cycle. The licensee also stated that they would run the pump before and after testing the trip mechanism to ensure pump operability.

One violation was identified.

5. Maintenance Observation (62703)

The inspectors observed safety-related maintenance activities on systems and components to ascertain that these activities were conducted in accordance with TS, approved procedures, and appropriate industry codes and standards. The inspectors determined that these activities did not violate LCOs and that required redundant components were operable. The inspectors verified that required administrative, material, testing, and radiological controls were adhered to. In particular, the inspectors observed/reviewed the following maintenance activities:

WR/JO 93HTY008	Perform Feedwater Regulating Valve Lock Bar Capscrew Torque Check (FCV-498)
WR/JO 93AFZL1	Troubleshoot FCV-498 To Determine Cause Of Not Responding Properly In Auto
WR/JO 93BUY341	Calibrate B Boric Acid Storage Tank Temperature Indicating Controller
WR/JO 93BWR231	Calibrate The L&N Heat Trace Recorders

Troubleshooting Of FCV-498

The inspectors witnessed repair efforts to feedwater regulating valve C accomplished under WR/JO 93HTY008 and WR/JO 93AFLZ1. These efforts are discussed in paragraph 3.

Calibration of Boric Acid Heat Trace Recorder 1

On June 2, 1993, the inspectors witnessed calibration of heat trace recorder number 1 in accordance with WR/JO 93BWR231. This consisted of a calibration of the stripchart recorder and the associated annunciators. The effort was conducted as part of the licensee's investigation into the observed low temperatures in boric acid recirculation piping while recirculating the BASTs. During the calibration of the annunciators, the inspectors noted that the desired alarm setpoints, as entered into the electronic controller for the stripchart recorder, were approximately 9 degrees higher than the nominal 150°F setpoint. This bias was required in order to have the annunciator alarm when the stripchart recorder indicated approximately 150°F. When questioned by the inspectors, the technicians where unable to provide any explanation as to why this offset was necessary.

Additionally, during the calibration, it was noted that Circuit 31 (the normal boration line between FT-113 and CVC-354) was not indicating. Investigation by the technician revealed that the indication for this circuit had been disabled with a dip switch in the stripchart recorder housing. During subsequent discussions, the system engineer stated that he had found another circuit similarly disabled the prior week.

Pending the licensee's resolution of these issues, they remain unresolved. URI: 93-11-06, Offset Required In Heat Trace Alarm Circuitry And Disabled Indication For Boric Acid Heat Trace Temperatures.

No violations or deviations were identified. Except as noted above, the area/program was adequately implemented.

6. Followup (92700, 92701, 92702)

(Open) LER 92-11, Conditions Outside Design Basis Due to Inadequate Seismic Restraints. This item, regarding inadequately supported Copes Vulcan valves, was discussed in IR 92-16. The inspectors verified, prior to cycle 15, that the supports identified in the LER as not meeting short-term criteria were modified as committed. The LER indicated that short-term qualified supports would be upgraded to long-term criteria by no later that RO-15. Design activities were in progress to develop modifications to address these supports. Based upon preliminary design activities, there were an estimated 62 supports that required modifications. Furthermore, there were 38 long-term qualified supports that were identified to be inspected because as-built documentation could not be found for some specific attributes.

In addition to the supports associated with the Copes Vulcan valves discussed above, there were two other processes which have identified short-term qualified supports. The piping improvement program identified 109 supports on 8 lines that were short-term qualified and another 70 supports on various lines that require inspection as describe above. Normal operating activities (i.e., deficiency identification program and engineering activities) resulted in the identification of an estimated 13 additional supports that require upgrade to long-term criteria and 3 supports that require inspections. Specifically, 4 issues were identified via normal operating activities. These were: (1) main steam line support embedded plate had broken grout; (2) control room cooler hot-gas bypass line temperature was outside design specification; (3) SI and CS pumps suction piping associated with the recirculation pathway were designed to 100° F verses the 210°F anticipated after an accident; and (4) the CS headers inside the CV were analyzed empty, whereas due to the RWST head these headers are partially filled.

In summary, 184 supports may require upgrading to long-term criteria and another 111 supports need inspections. Design modification packages have been completed for 26 supports and 15 supports have been inspected. Support design was scheduled to be completed by the end of June;

however, construction reviews and outage scheduling will not be completed until August 1, 1993. Thus, although it was anticipated that the work would be performed before the end of RO-15, there was a possibility some of the work will not be completed by that time. This item will remain open pending completion of modification package development and implementation.

(Closed) VIO 92-27-02, Failure To Implement GP-008 In That RCS Water Level Instrumentation Loops Were Not Calibrated As Required. The inspectors verified that GP-008, Draining The Reactor Coolant System, had been revised, as stated in the Reply To A Notice Of Violation, dated December 4, 1992, to require individual sign-offs for calibration of each component in LT-403 and LT-404 RCS level instrumentation loops. The inspectors also confirmed that the "Master WR List" for GP-008 was changed to include calibration of LT-403 and LT-404.

The inspectors noted that the calibration procedure for the alarm switches LSL-403 and LSL-404 did not include a verification that when a switch actuates a visible and audible indication is received in the control room. In addition, through discussions with I&C planners and document reviewers, the inspectors determined that there were no procedural requirements to verify that these alarm features work properly. GL 88-17, Loss Of Decay Heat Removal, enhancement item 1.d recommended that visible and audible indications of abnormal conditions in level be provided. The licensee's response to Generic Letter 88-17, dated February 1, 1989, stated that "An alarm will be added in the control room for each level indicator." LSL-403 and LSL-404 were provided to meet this commitment. Implicit in the recommendation to provide an alarm is the expectation that the alarm features will be functionally tested periodically. Failure to verify that the alarm is received in the control room when these switches are calibrated/tested is a weakness. The inspectors also noted that since annunciators are considered to be nonsafety-related, non-MST calibration procedures typically do not verify proper operation of the alarms/annunciators. This was discussed with the Maintenance Manager, who disagreed with the inspectors characterization of this problem as being a weakness. However, he indicated that procedures for LSL-403 and LSL-404 would be revised to include alarm verification. The MSTs that were upgraded as part of the maintenance procedure rewrite program verified that alarms were received during testing.

(Closed) VIO 92-34-04, Failure To Adequately Establish EPP-9 In That Steps Were Provided To Operate The RHR Pump At Pressures Above Its Shutoff Head Without A Caution Note Prior To Steps. The inspectors reviewed the Reply To A Notice Of Violation dated February 11, 1993. AP-022, Document Change Procedure, was verified to have been revised as committed. In addition, the inspectors verified that EPP-9, Transfer To Cold Leg Recirculation, Revision 11, issued on January 5, 1993, provided a caution note to warn operators that operation of RHR Pumps in a dead-headed condition for greater than 9 minutes could result in pump damage.

The applicability of this violation to other EPPs will be inspected as part of the followup activities associated with IFI 91-22-10 regarding the AOP/EOP upgrade project. This item is considered closed.

No violations or deviations were identified. Except as noted above, the area/program was adequately implemented.

7. Information Meeting With Local Officials (94600)

On June 9 and 10, 1993, information meetings were held with local officials representing the City of Hartsville, the County of Darlington and the County of Florence. The meetings were held in the offices of the officials at their request. The mission and functional organization of the NRC and its relationship to the community were discussed. The meetings were informal with the attendees responding with questions of interest and importance to their communities. Plant operational safety, security, emergency plans, and community staffed plant fire response were of high interest to the groups. The response by the officials was very positive and provided a good opportunity for interface and followup communication. H. Christensen, Chief, Project Section 1A, Division of Reactor Projects, attended and participated in the meetings.

8. Exit Interview (71701)

The inspection scope and findings were summarized on June 17, 1993, with those persons indicated in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection findings listed below and in the summary. Dissenting comments were not received from the licensee. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

Item Number	Description/Reference Paragraph
93-11-01	VIO: Failure To Make A Timely Notification To The NRC Of A Notification To State Authorities (Paragraph 3).
93-11-02	VIO: Failure To Follow Procedures For a Heat Trace Circuit In Alarm/Failure To Follow Procedure During Performance Of OST-254 (Paragraph 3).
93-11-05	VIO: Failure To Properly Maintain Maintenance Procedure CM-008 (Paragraph 4).
93-11-03	URI: Potential Inoperability Of The Boric Acid Storage Tanks (Paragraph 3).
93-11-04	URI: Degraded Diesel Generator Ventilation System (Paragraph 3).

93-11-06	URI: Offset Required In Heat Trace Alarm Circuitry And Disabled Indication For Boric Acid Heat Trace Temperature (Paragraph 5).

9. List of Acronyms and Initialisms

a.m.	Ante Meridiem
AO	Auxiliary Operator
AOP	Abnormal Operating Procedure
APP	Annunciator Panel Procedure
BAST	Boric Acid Storage Tank
BATP	Boric Acid Transfer Pump
CCW	Component Cooling Water
CFR	Code of Federal Regulations
CM	Corrective Maintenance
CP&L	Carolina Power & Light
CS	Containment Spray
CVCS	Chemical & Volume Control System
EDG	Emergency Diesel Generator
EOP	Emergency Operation Procedure
EPP	End Path Procedure
ETS	Engineering Technical Support
F	Fahrenheit
FCV	Flow Control Valve
FT	Flow Transmitter
gpm	Gallons Per Minute
GL	Generic Letter
GP	General Procedure
HCV	Hand Control Valve
HDO	NRC Headquarters Duty Officer
I&C	Instrumentation & Control
i.e.	That is
IR	Inspection Report
LCO	Limiting Condition for Operation
LER	Licensee Event Report
LT	Level Transmitter
MST	Maintenance Surveillance Test
NPDES	National Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
OMM	Operations Management Manual
ONS	Onsite Nuclear Safety
OST	Operations Surveillance Test
p.m.	Post Meridiem
psig	Pounds Per Square Inch - Gage
RCS	Reactor Coolant System
RHR	Residual Heat Removal
RO	Refueling Outage
RWST	Refueling Water Storage Tank
SI	Safety Injection
SOER	Significant Operating Experience Report
TS	Technical Specification

URI	Unresolved Item
VIO	Violation
W/R	Work Request
WR/JO	Work Request/Job Order