



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

Report Nos.: 50-325/94-09 and 50-324/94-09

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

Docket Nos.: 50-325 and 50-324 License Nos.: DPR-71 and DPR-62

Facility Name: Brunswick 1 and 2

Inspection Conducted: April 6 - May 6, 1994

Lead Inspector: [Signature] 6/1/94
R. L. Prevatte, Senior Resident Inspector Date Signed

Other Inspectors: P. M. Byron, Resident Inspector
M. T. Janus, Resident Inspector

Accompanying Personnel: E. Y. Wang, General Engineer (Intern)

Approved By: [Signature] 6/1/94
H. O. Christensen, Chief Date Signed
Reactor Projects Section 1A
Division of Reactor Projects

SUMMARY

Scope:

This routine safety inspection by the resident inspector involved the areas of operations, maintenance and surveillance, engineering support, plant support, and other areas. Inspections were conducted during normal working hours, on back shift, deep back shift, holidays, and weekends.

Results:

In the areas inspected two violations and one non-cited violation were identified:

Failure to follow procedures during surveillance testing of RCIC, Violation 325/94-09-01 (paragraph 3.d).

Failure to evaluate a damaged snubber and/or perform a RHR system operability within 72 hours of the discovery, Violation 324/94-09-02 (paragraph 4.a).

A Non-Cited Violation, with two examples, for the failure to maintain compensatory action on inoperable or degraded fire barriers was identified, NCV 325,324/94-09-03 (paragraph 5.c).

Additionally, five additional examples of a violation involving configuration control identified in Report 325,324/94-07 were documented (paragraph 2.c and 3.a). Configuration control continues to be a problem and additional management attention is needed.

A strength involving practical testing of contractor craftsmen was identified (paragraph 3.f). The core offload for Unit 2 was performed in a smooth and efficient manner (paragraph 2.f.).

A review of selected overtime records for the previous two Unit 2 outages indicated that no individuals worked in excess of their authorization (paragraph 6.b.).

The Plant Nuclear Safety Committee meetings have improved and the discussions are more focused and directed to safety issues (paragraph 6.c.).

Unit 1 operated at essentially 100% power for the inspection period.

Unit 2 continued in the refueling outage that commenced on March 25. Additionally, the licensee completed the Unit 2 vessel visual inspection on May 2, several cracks in the core shroud were identified (paragraph 4.b.).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *K. Ahern, Manager - Operations Support and Work Control
- R. Anderson, Vice President - Brunswick Nuclear Project
- *G. Barnes, Manager - Operations, Unit 1
- *M. Bradley, Manager - Brunswick Project Assessment
- *J. Cowan, Director - Site Operations
- G. Honma, Supervisor - Licensing
- *N. Gannon, Manager - Maintenance, Unit 1
- R. Grazio, Manager - Brunswick Engineering Support Section
- *J. Heffley, Manager - Maintenance, Unit 2
- *G. Hicks, Manager - Training
- P. Leslie, Manager - Security
- *W. Levis, Plant Manager - Unit 1
- *R. Lopriore, Manager - Regulatory Affairs
- *C. Pardee, Manager - Technical Support
- *C. Robertson, Manager - Environmental & Radiological Control
- *J. Titrington, Manager - Operations, Unit 2
- *M. Turkal, Supervisor - Regulatory Compliance
- *C. Warren, Plant Manager - Unit 2
- G. Warriner, Manager - Control and Administration
- E. Willett, Manager - Project Management

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

*Attended the exit interview.

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

2. Operations

a. Operational Safety Verification (71707)

The inspectors verified that Unit 1 and Unit 2 were operated in compliance with Technical Specifications and other regulatory requirements by direct observations of activities, facility tours, discussions with personnel, reviewing of records and independent verification of safety system status.

The inspectors verified that control room manning requirements of 10 CFR 50.54 and the Technical Specifications were met. Various equipment and operator logs were reviewed to obtain information concerning operating trends and out of service safety systems to ensure that there were no conflicts with Technical Specification Limiting Conditions for Operations. Direct observations of control room panels and instrumentation and recorded traces

important to safety were conducted to verify operability and that operating parameters were within Technical Specification limits. The inspectors observed shift turnovers to verify that system status continuity was maintained. The inspectors also verified the status of control room annunciators.

Operability of a selected Engineered Safety Feature division was verified weekly by ensuring that: each accessible valve in the flow path was in its correct position; each power supply and breaker was closed for components that must activate upon initiation signal; the RHR subsystem cross-tie valve for the operating unit was closed with the power removed from the valve operator; there was no leakage from major components; there was proper lubrication and cooling water available; and conditions did not exist which could prevent fulfillment of the system's functional requirements. Instrumentation essential to system actuation or performance was verified operable by observing on-scale indication and proper instrument valve lineup, if accessible.

b. Refueling Operations (60710)

The licensee commenced the Unit 2 core offload on April 2. The core component sequence (move) sheets contained a total of 705 moves of either fuel bundles to be removed or control blade guides to be installed. The licensee completed the core offload on April 8, following some delays associated with mispositioning a bundle in the spent fuel pool (SFP) (see IR 50-325,324/94-07) and problems with the bridge controls discussed below.

While in the process of performing fuel move step 564, the refueling bridge began to experience control problems. The bridge was in transit with a fuel bundle attached, and had just passed through the "cattle shoot" and entered the SFP. On entering the SFP, the bridge operator attempted to perform dual axis bridge movement; however, the bridge trolley would not move. When the bridge trolley failed to move, the bridge operator released the controls for the forward motion of the bridge. Releasing the controls removes a move demand signal and should stop all movement of the bridge. The bridge continued moving forward when the controls were released. The bridge operator immediately engaged the emergency bridge stop. Forward motion of the bridge was terminated approximately half way across the SFP.

Following the emergency stop of the bridge, the refueling SRO notified the control room of the problem. The unit SRO directed the refueling SRO to stop all further movements until the GE refueling bridge engineer arrived to investigate the incident. After consultation with the GE bridge engineer, the unit SRO authorized the refueling SRO

to reset the bridge logic. The logic was successfully reset, and the unit SRO directed the refueling SRO to complete step 564 and place the suspended fuel bundle into the proper SFP location.

The inspector arrived at the bridge approximately 10 minutes after the above event and was appraised of the situation by the refueling SRO. The inspector discussed the actions taken by all parties on the bridge during the incident and remained on the bridge until the fuel bundle was successfully lowered into place in the SFP. The refueling SRO then suspended further fuel movements until troubleshooting and repairs could be completed. The inspector remained on the refueling bridge and observed the troubleshooting and repair activities. Troubleshooting determined that a computer card in the PMAC needed to be replaced. The inspector observed the performance of this work which was accomplished by WR/JO 94-AFMD1. Replacing the old control card failed to solve the problem. Further investigation and consultation with GE design engineers in San Jose determined that a software problem existed. The control software was reprogrammed, and the refueling bridge successfully passed the PMTR. Fuel movement recommenced and was completed without any further complications.

The inspector observed the core offload activities on April 5, 6, and 7 and was present on the refueling bridge for these evolutions on April 6 and 7. Licensee and contractor personnel performed the core offload in accordance with plant procedure, O-FH-11, Refueling, and the core component sequence (move) sheets. The core offload was performed with at least the minimum required staff of a refueling bridge operator, an observer, and a refueling SRO on the bridge at all times. The inspector observed good communications among the individual refueling bridge personnel and between the refueling bridge and the control room. The inspector also observed that the bridge observer and the refueling SRO independently verified and concurred on each step prior to movement and clearly communicated each step to the control room. During these observations, the inspector found that refueling bridge personnel were very observant, displayed a questioning attitude at all times, and were knowledgeable of their respective duties and responsibilities. The observed portions of the core offload appeared to be performed in a smooth and efficient manner by knowledgeable and attentive personnel.

c. Configuration Control

On April 15, during the Unit 2 outage, annunciator logic cards with clearance tags attached were removed by craft personnel. Plant Procedure AI-58, Equipment Clearance Procedure, Revision 44,

Section 3.7, states that only an auxiliary operator is allowed to perform this function. The craftsman who manipulated the logic cards was working under WR/JO 93-BBNP5 in the Unit 2 Control Room back panel area. The logic cards were tagged with red clearance tags which should have prevented anyone other than Operations personnel from moving the tags and/or cards. The licensee's immediate corrective actions included stopping work, informing management, placing this and other related work orders on hold for review, and reinforcement of clearance procedural requirements. This event was documented in ACR 94-00494.

On April 16, during the refueling outage, the licensee found Unit 2 Recirculation "B" Loop Suction Header Drain Inboard and Outboard Valves, B32-F051B and B32-F052B, in the open instead of closed position as required by Special Procedure 2-SP-94-004, RCR Chemical Decontamination, Revision 1, Step 10.2.24. In the process of filling of the B loop the drywell equipment drain pump started running. An operator sent to investigate this item entered the drywell and found F051B and F052B in the open position. Both valves were immediately closed and verified closed in accordance with 2-SP-94-004. The licensee's preliminary investigation revealed that the major cause of this event was due to mechanical binding of the valves. Under the clearance, there were two work orders. Both work orders required operation of all four valves, B32-051A, 052A, 051B, and 052B. The first crew opened all four valves and three of them were back seated tightly with the exception of 052A valve which was opened one third. When a worker on the second crew tried to close these valves, 052A closed easily. When he attempted to close 051A, he noticed that it appeared to be in the open position because the stem length was different from 052A. After a strong effort, he was able to break loose the handwheel of 051A and closed it. However, he was unable to move 051B and 052B in the closed direction and assumed they were closed because the stems were about the same length. ACR 94-00503 was written to document this event. The licensee has conducted remedial training of the above personnel focusing on valve operations and valve position determination.

On April 5, after manually stroking valves in the circulating water (CW) system, Unit 2 I&C technicians noticed that personnel were inside the CW piping and near the valves. The technicians were working on motor operated valves (MOVs) 2-CW-V3-MO, 2C Circulating Water Intake Pump Discharge Valve, and 2-CW-V13-MO, Condenser 2B North Water Box Inlet Valve. Both valves were electrically under clearance; however, neither of them had clearance tags on their handwheels to prevent manual operation of the valves. The clearance (No. 2-94-00130) had special instructions which required verification that personnel were not in the piping prior to cycling the valves. It appears that the technicians were either not aware of or failed to follow these special instructions. The licensee's immediate corrective action included stopping all work on the MOVs in the CW system until it

was verified that the work could be accomplished in a safe manner. This event was documented by ACR 94-00464.

The above three events and two configuration control problems in paragraph 3.a of this report are similar to six configuration control problems identified as a Violation in Inspection Report, 50-325,324/94-07. Since the licensee has not had an opportunity to respond to that Violation, these five items will be additional examples of Violation 94-07-01.

Five additional examples of a previously cited Violation were identified.

3. Maintenance and Surveillance

a. Maintenance Observation (62703)

The inspectors observed maintenance activities, interviewed personnel, and reviewed records to verify that work was conducted in accordance with approved procedures, Technical Specifications, and applicable industry codes and standards. The inspectors also verified that: redundant components were operable; administrative controls were followed; tagouts were adequate; personnel were qualified; correct replacement parts were used; radiological controls were proper; fire protection was adequate; quality control hold points were adequate and observed; adequate post-maintenance testing was performed; and independent verification requirements were implemented. The inspectors independently verified that selected equipment was properly returned to service.

Outstanding work requests were reviewed to ensure that the licensee gave priority to safety-related maintenance. The inspectors observed/reviewed portions of the following maintenance activities:

WR/JO 94-AFMDL	Replace computer card on Unit 2 refueling bridge (see paragraph 2.b)
WR/JO 93-BBEQ1	DG No. 3 cylinder replacement
WR/JO 93-AGBF1	DG No. 3 exhaust header inspection
WR/JO 93-AGBF2	DG No. 3 installation of cylinder exhaust thermocouples
WR/JO 94-AFSR1	Rebuild 1B screen wash pump

Diesel Generator No. 4

This DG was taken out of service for one of the two planned seven day outages scheduled during the Unit 2 refueling outage. During the period of April 18 through April 24, the licensee performed Emergency Diesel Generator 18-Month Inspection O-MST-DG500R; emergent work tickets; tested the 2X LOCA logic; replaced the lube oil pump Dresser coupling under WR/JO 93-BEHL; and performed maintenance on the DG air compressors. In addition, that portion

of Plant Modification 91-071 which connects replacement copper nickel service water piping to DG No. 4 was completed. New Jamesbury butterfly isolation valves (1-SW-V682 and 2-SW-V682) which control flow from either the Unit 1 or Unit 2 NSW systems were installed as part of the modification.

The new valves operate in the counter clockwise direction to open which is opposite of the original valves. Prior to the installation of the motor operators, the valves were manipulated by the mechanics who operated the valves in the wrong direction and forced the disc through the valve seat. This action damaged both valves and required their replacement. ACR 94-00537 was written to document this event. Investigation by the licensee determined that the applicable sketches of the valve in the modification package showed the Limatorque actuator position as Position A which operated in the clockwise position to open the valve. The licensee corrected the applicable sketches to show the Limatorque operator in the B position and issued a Field Revision for both PMs 91-070 and 91-071 for Units 1 and 2, respectively.

The inspector also observed portions of the engine internal inspection and reassembly of the engine. The mechanics had the procedures at the job site and were attentive. The diesel crew appeared to have a strong sense of ownership in the diesel maintenance.

Diesel Generator No. 3

This DG was taken out of service for two, seven-day maintenance periods. The major work accomplished on this DG included: a visual inspection of all cylinder liners replacement of 4 cylinder liners with the most wear indication (5L, 5R, 6L, and 6R); calibration of instrumentation and relays; performance of the 18-month outage inspections (OMST-DG500R); repair of leaks; draining and cleaning the oil sump and replacing oil; completion of outage scheduled trouble tickets; cleaning and replacement of filters and strainers; changing turbo charger oil; sampling governor oil; setting valve timing; performing a modification to add control air filters; completion of the modification to tie in new service water piping to the jacket water coolers; and performing the required post-maintenance and modification testing to verify DG operability after completion of the above work.

The inspectors followed the above work activities on a daily basis while the DG was out of service. The work was well planned and appeared to receive good supervisory oversight. However, a problem with the above activities occurred when service water supply valves, 1 and 2-SW-V681, to the jacket water heat exchanger, were manually operated prior to adjusting the mechanical stop and removing the mechanical valve gag devices. This resulted in moving the valve disc past the seating surface and damaging the 2-SW-V681 valve. This valve was replaced and the

DG was returned to service prior to the LCO expiration. The 1-SW-V681 valve did not appear to be damaged and is being monitored for leakage. This item was documented by ACR 94-00583. This problem was similar to the problem that occurred on DG 4 when both of the newly installed service water valves were operated in the wrong direction and damaged.

The above are additional examples of violation 94-07-01 and should be encompassed by the corrective action for that violation.

b. Surveillance Observation (61726)

The inspectors observed surveillance testing required by Technical Specifications. Through observation, interviews, and record review the inspectors verified that: tests conformed to Technical Specification requirements; administrative controls were followed; personnel were qualified; instrumentation was calibrated; and data were accurate and complete. The inspectors independently verified selected test results and proper return to service of equipment.

On April 18, the licensee experienced two separate RCIC isolations on Unit 1. Both were caused by personnel error. At 11:11 a.m., the RCIC turbine tripped due to a partial Logic A, Group 5, isolation during the performance of maintenance surveillance test 0-MST-RCIC 23M, RCIC Turbine Exhaust Diaphragm Hi Pressure Instrument Calibration. This event was documented by ACR 94-00507 and reported to the NRC by ENS at 3:04 p.m. Investigation by the licensee revealed that a new I&C technician had inadvertently touched the wrong terminal points in the local panel. It was the first time the technician had performed this surveillance. The licensee determined that there were several contributing factors in addition to the technician's lack of experience.

The terminal box is located in an area which is difficult and awkward to reach. The control wires inside the terminal box were not neatly arranged which hindered access, and the two points were adjacent on the terminal strip. The licensee cleaned up the wiring in the local panel and relocated one of the terminals on the terminal strip. The technician was also counselled.

The inspector viewed photographs of the terminal box in the as-found condition and concurred with the licensee's conclusion. He also verified that the physical location of the terminal box results in an awkward work situation. The inspector questioned the licensee on why they allowed terminal boxes to be in disarray and if other cabinets were in a physical condition which could contribute to another event. The licensee's planned remedial action is to inspect each cabinet prior to the performance of a surveillance and improve the internal housekeeping.

The second RCIC turbine trip occurred at 5:18 p.m. during the performance of 1-MST-RCIC 22M, RCIC Steam Line Low Pressure

Instrument Channel Calibration. The licensee determined that the isolation signal was caused by test leads, which had accidentally been stepped on and pulled out of the digital volt meter (DVM), being reconnected on the terminal points used in the previous step. The landed leads were incorrectly connected to relay E51A-K49B. This configuration energized the relay resulting in a RCIC isolation which closed the RCIC Turbine Trip and Throttle (E51-V8) and Outboard Steam Supply (E51-F008) valves. This event was documented by ACR 94-00508 and reported to the NRC by the ENS.

Investigation by the licensee revealed that the I&C technician had taken one set of voltage measurements and then removed the leads and placed them on Relay E51A-K49B coil contacts. He stepped on the DVM leads as he exited the cabinet to take the second set of voltage readings and the leads were pulled out of the DVM. The technician took the unlanded leads and connected them to the contact points of the previous step which energized the channel B relay.

The investigation revealed that the same MST crew was involved in both RCIC isolations. The investigation also determined that the failure to follow procedure was a significant contributor to this event. MST-RCIC22M, Section 5.1.4, requires that two VOM are used. Step 7.5.22 requires that a VOM be connected across terminals 1-7 of Relay E51-K49D and Step 7.5.32 requires a VOM be connected to terminals AA-73 and AA-74 in panel H12-P621. Step 7.3.43 removes the VOM from terminals 1-7 while Step 7.3.44 removes the VOM from terminals AA-73 and AA-74. The procedure requires that the removal be verified. There are no steps between 7.5.22 and 7.5.43 which directs the VOM to be removed. The licensee determined that the procedure requires two VOMs or DVMs be used. The lead technician stated that he frequently performed this MST with only one DVM. The Unit 1 I&C Maintenance Manager surveyed other I&C crews in both units and the procedure writers and all concurred that the procedure required two DVMs. Maintenance Management Manual OMM-001, Maintenance Conduct of Operations, Revision 23, Section 5.4.1.2.8.3, requires that MSTs be performed in accordance with OMMM-13, Maintenance Surveillance Test Users Guide. OMMM-13, Revision 16, Step 3.2, requires adherence to MST steps. Step 5.2.1 requires MST performance be conducted with strict adherence to procedure step instructions and if the instructions cannot be followed, the supervisor should be notified. The licensee also determined that inadequate pre-job briefings occurred for both MSTs. The failure to follow procedures is a Violation of Technical Specification 6.8.1 (325/94-09-01).

The investigation also revealed that the Unit 1 MST crew frequently used a single DVM when two were recommended or required. However, a review of previous MST-RCIC22M tests indicated that two DVMs had been used. The inspector found the licensee's investigation to be detailed and thorough.

The Root Cause Analyses for both RCIC isolations were reviewed by the inspector. The inspector determined that the licensee adequately addressed the causal factors. The licensee has completed the following corrective actions for both events:

- The Unit 1 I&C Maintenance Manager counselled his staff on expectations regarding procedural compliance, needed material condition improvements, and the required content of pre-job briefings.
- New extended clips have been placed on test leads.
- Unit 1 MST practices have been compared with those of Unit 2 and the best practices were adapted from each unit.

The licensee also plans to perform self-assessments to determine corrective action effectiveness for this and other actions involving personnel and personnel selection.

It appears that the above performance problems were restricted to one crew. The licensee has completed their investigation but has not determined all needed corrective actions. The inspector considers the licensee's investigation of this event to have been detailed and thorough. The corrective actions will be evaluated during the closure of the Violation.

c. Review of Maintenance LERs (92700)

(Closed) LER 1-93-012, Group 1, Isolation Due to Resetting Main Turbine for Testing. On September 28, 1993, Unit 1 was in a refueling outage with the unit power being supplied through the UAT and maintenance being performed on the EHC system. Maintenance and testing required stroking of the main turbine control valves. The main turbine trip was reset to allow this testing. An EHC logic circuit automatically selects a main turbine speed of 1800 rpm whenever the main turbine is not tripped and the main generator power circuit breakers are closed. Resetting the turbine trip enabled this automatic 1800 rpm speed select, and the stop valves opened. Opening of the stop valves in conjunction with low condenser vacuum completed the logic for a Group 1 isolation signal. All systems operated as required, and the safety significance of the event was minimal. The root cause was that plant procedures in use did not adequately address the situation at the time.

The licensee's corrective actions were to revise Operating Procedure 50, Plant Electrical System Operating Procedure, to provide appropriate procedural guidance and a warning to disable this automatic speed select feature while in UAT backfeed. The licensee completed this action and issued Revision 45 to 1-OP-50 on December 31, 1993, and Revision 28

to 2-OP-50 on February 4, 1994. The inspector reviewed these corrective actions and verified that appropriate procedural changes have been made. The inspector determined that these corrective actions adequately address this issue.

(Closed) LER 2-93-09, ADS Relays Energized due to VOM Improperly set during Performance of an MST. This item was addressed and closed in Inspection Report 50-325,324/94-07 as LER 2-93-07. The correct LER number is LER 2-93-09.

d. Maintenance Training (62703)

Improved maintenance training is included in the licensee's improvement initiative in the current Business Plan (TY202). This initiative includes craft training upgrades. On April 6 and 7, the inspector toured the Maintenance Training Facility (MTF) to observe portions of this training.

The current MTF is offsite and located in a former automobile dealership. The licensee is presently constructing a 33,000 square foot building on site to house the MTF. This building, which is scheduled for August 1994 completion, will provide separate training areas for each craft. The inspector noted that additional equipment has been obtained for training aids and the staff has also fabricated several training aids.

The licensee tests new maintenance personnel to determine their knowledge and skill levels for given tasks. Maintenance Training with craft and supervision input determined the tasks for which tests would be developed. The tests are designed to evaluate and qualify personnel on their performance of task critical elements. Testing was waived for qualified maintenance craft when this program was initially implemented. Subsequently, the licensee determined that it was important to know the skill level of all the maintenance personnel who had been "grandfathered." The results of this testing are also used to develop and/or upgrade the content of craft training. In addition, for the current Unit 2 outage, the licensee initiated task testing for all qualified contractor craft personnel who could be assigned to work independently. Testing revealed that some contractors were not qualified to work independently on certain tasks. The licensee has found the testing beneficial and states that it has improved the quality of maintenance and craft contractor work.

The inspector observed a contractor testing session for I&C technicians. A senior maintenance technician observed and evaluated the contractors at each task station. A score of 80 percent or better is required for the task performance. Individuals receiving at least 70 percent are allowed to retest. Discussions with training personnel revealed that the contractors took the same test given to qualify licensee employees. The inspector's experience is that hands-on testing is more reliable

testing of craft knowledge and skill than written testing. The licensee is having a similar experience. The inspector found that the tests were well run and those being evaluated were given sufficient opportunity to demonstrate their knowledge. The inspector considers the testing of contractor craft personnel to be a strength.

e. Licensee Action on Previous Maintenance Findings (92701, 92702)

(Closed) Violation 325,324/93-27-01, Failure to Implement Procedure AI-118, Switchyard and Transformer Yard Vehicle Access. This event occurred on June 14, 1993, when a fork truck operator failed to obtain shift supervisor permission and hold a pre-job brief prior to driving his fork truck into the Units 1 and 2 transformer yards. This occurred because the personnel involved failed to review, understand, and follow the requirements of AI-118. These personnel also failed to establish command and control responsibilities for the activities being performed. The licensee's immediate corrective actions were to enhance the physical barriers and signs at the north and south entrances to the transformer yards, and instructions were issued explaining the requirements of AI-118 for Operations, E&RC, and Technical Support personnel. Subsequent corrective actions which have been completed include: an evaluation of the designated roadways, vehicle exclusion zones, and improvement of the physical barriers associated with the transformer yard; evaluation of AI-118 training for all vehicle operators; a revision to AI-118 to provide additional guidance for use; and the procurement of a flush deck platform cart for use in the transformer yard rather than motorized vehicles. The inspector verified that the above stated corrective actions have been completed and are acceptable to prevent future recurrence of this event.

One violation was identified.

4. Engineering Support (71707)

a. Inoperable RHR Snubber

On December 2, 1992, RHR snubber 2-E11-69SS574 was replaced under WR/JO 92-BDMX1. While performing this work, the craft identified a crack in the grout under the baseplate, and EWR-09968 was written on December 9, 1992, requesting an operability evaluation of the snubber. The evaluation was completed on February 5, 1993, and found that the cracks in the grout did not affect snubber operability. On February 6, 1993, WR/JO 93-AFCU1 was written to repair the baseplate grout. The WR/JO allowed the work to be performed on line. On March 18, 1994, while removing the grout, the workers found that the anchor bolts were damaged. On March 23, WR/JO 93-AFCO1 was placed on "Interrupted" status and

WR/JO 93-AFCU2 was generated to repair or replace the anchor bolts. On April 12, an ISI Supports Engineer and the System Engineer inspected the support and determined that the snubber could not perform its design function and should have been declared inoperable due to the failed anchor bolt. On April 13, ACR 94-00483 was written to document that neither an ACR had been written nor had an engineering evaluation been made for the failed anchor bolts. The snubber supports demineralized water fill valve piping. EDBS lists it as seismic and Q-list Class A.

Technical Specification 3.7.5 requires that snubbers be operable in Operational Conditions 1, 2, and 3, and for those systems required to be operable in Operational Conditions 4 and 5. Technical Specification 3.7.5 also requires that with one or more snubbers inoperable on any system, the inoperable snubber should be replaced or restored to operable status within 72-hours and an engineering evaluation performed. The failure to evaluate the RHR system operability within 72-hours of the discovery of the broken anchor bolts on March 18 is a Violation of Technical Specification 3.7.5 (324/94-09-02).

b. Reactor Vessel Shroud Inspection

The licensee completed the Unit 2 ISI In-Vessel Visual Inspection on May 2. The shroud was included in this inspection effort. The inside diameter of the H-4 weld and the shroud access hole covers were inspected ultrasonically. The results of the shroud inspection are as follows:

H1	Outside diameter (OD)	No indications
H1	Inside diameter (ID)	Not inspected
H2	-40°-50° (OD)	16+" crack
H3	OD and ID	Not inspected
H4	ID-78%inspection by UT only	Total 111.6" crack Max depth 0.86"
H4	OD	No indications observed
H5	ID	Total 70.25" crack
H5	OD	Total 11" crack
H6A, H6B & H7	OD	Total 5 indications Max 2"
H6A, H6B & H7		ID are inaccessible and not examined
Both shroud access hole covers		No indications

The licensee commenced the shroud repair on May 6. The inspectors will continue to follow this item throughout the outage until repairs are completed.

One violation was identified.

5. Plant Support

a. Radiological Controls (71707)

The inspectors verified that the licensee's HP policies and procedures were followed. This included routine observation of HP practices and a review of area surveys, radiation work permits, posting and instrument calibration. No deficiencies were identified.

b. Security (71707)

The inspectors verified by general observations that: the security organization was properly manned and security personnel were capable of performing their assigned functions; persons and packages were checked prior to entry into the PA; vehicles were properly authorized, searched and escorted within the PA; persons within the PA displayed photo identification badges; personnel in vital areas were authorized; effective compensatory measures were employed when required; and security's response to threats or alarms was adequate. No deficiencies were identified.

c. Missed Hourly Fire Watch Surveillances (71707)

On March 1, the responsibility for hourly fire watch inspections was transferred from Operations Radwaste to Security. Technical Specification 6.8.1(f), states that written procedures shall be established, implemented, and maintained on the Fire Protection Program Implementation. Plant Procedures, Fire Protection System Operability and Action Requirements PLP-01.2 and Fire Watch and Fire Inspector, FPP-005, implement these requirements. Section 6.2.2 of PLP-01.2 requires an hourly fire watch patrol to be established; and Section 8.2.3.1 of FPP-005 requires visual inspection of the monitored area.

On March 6, a security guard missed two hourly fire watch inspections of Unit 2 ECCS room. The inspections were required as a compensatory measure for Thermolag. This event occurred when the security guard attempted to gain entrance to the Unit 2 ECCS room. He was informed that the door to the ECCS room was locked and was cautioned against entering the area due to RHR Chemical Decontamination in progress. Since the door was locked and the area was considered a Locked High Radiation Area, the guard made a visual inspection of the door and continued his rounds. No communication of this occurrence was made to the supervisor or Fire Protection Operator. When this guard was relieved and the new guard found the door to the ECCS room locked, the new guard notified his supervisor and steps were taken to allow the guard to open the door and make the required hourly inspection. Preliminary licensee investigation revealed that the cause of this event was the unfamiliarity of the guard with this new job and a lack of a questioning attitude. This event was documented in ACR

94-087. This is identified as the first example of a Violation: failure to follow procedures for compensatory inspections on inoperable fire protection equipment.

On March 7, a Fire Protection Auxiliary Operator (FPAO) discovered that between March 1 and March 7, the hourly fire watch inspections on the Unit 2 ECCS tunnel which included the fire watch coverage for the Thermolag in the ECCS room, was not maintained. During the cancellation of LCO A1-94-F089 on March 1, the FPAO phoned the Secondary Alarm Station (SAS) operator and directed Security to delete compensatory action for the fire seal R1-2-082, located in the Unit 1 ECCS tunnel, from the list of the fire watch rounds. The SAS operator asked the FPAO if he was referring to the ECCS room and the FPAO replied in the affirmative. The SAS operator canceled the fire watch for the ECCS tunnel which also included the fire watch coverage for the Thermolag. Preliminary licensee investigation revealed that miscommunication was the cause of this event. The FPAO did not ensure the SAS operator clearly understood the communication. The lack of self-checking by the SAS operator was determined to be a contributing factor to this event. Licensee's corrective actions included delegating the authority to delete any hourly fire watch rounds to Senior Specialist - Fire Protection, only and training of security personnel to notify the SAS immediately if for any reason they can not complete a check of a designated area. This item was documented by ACR 94-088. This is identified as the second example of the above Violation.

Licensee investigations of these two events revealed a lack of self-checking and poor communications. In both events, careful self-check and good communications could have avoided delays in correction of the problems, if not preventing the problems altogether.

The inspector reviewed the licensee's corrective actions to address the problem of fire watch events. They appear to be adequate to reduce future occurrences of similar events. The inspector reviewed fire watch training material and training documentation which showed that assigned security personnel received training from the licensee and the security contractor prior to assuming the new duties. It appeared that this training was adequate, and that the two events were partially the result of security assuming new duties with the lack of supervision and management oversight during the transition period.

The above events failed to meet licensee's procedural requirements and are identified as examples of Violation of Technical Specification 6.8.1.(f): Failure to Implement Procedures for compensatory inspection of inoperable fire protection equipment. However, since the events were identified by the licensee, had only minor safety significance and were promptly corrected this item meets the guidance specified in Section VII.B of the

enforcement policy and therefore will not be cited as a violation. This item is identified as Non-Cited Violation (NCV 325,324/94-09-04): Failure to Follow Procedure.

One non-cited violation with two examples was identified.

6. Other Areas

a. Unit 1 Assessment (40500)

On April 20, the inspector attended the initial Unit 1 monthly assessment meeting held by the Plant Manager with the Maintenance, Operations, and the E&RC and Technical Support Managers. Issues, problems, and corrective action effectiveness are discussed at these meetings. Each current LCO was discussed as to status and when the tracking LCOs were expected to be canceled. The outstanding challenges facing each unit manager were discussed. The Technical Support manager discussed areas on which he was working as well as areas of interest. The inspector found the discussions to be focused and frank. The questions were well thought out and the Plant Manager also raised questions that required investigation prior to response. The inspector considered this meeting to be beneficial as it allowed unit issues to be raised and addressed as well as addressing potential issues.

b. Outage Overtime (71707)

The inspector reviewed the overtime records for the previous two Unit 2 outages: the four months RFO in 1991 and the 12-month forced outage from April 1992, to April 1993. The review was to include: licensee procedures and Technical Specification requirements related to overtime; determination of which organization used the most overtime, average weekly and maximum weekly use of overtime by organization, determination of overtime authorization prior to need, and determination of licensee assessment/audit on overtime usage.

The inspector also included overtime for the largest labor contractor for both outages and Technical Support's use of contractors for the forced outage. The inclusions of these two groups provided a more representative composite of overtime use. The licensee utilized a significant number of contract HP technicians during both outages. The data on HP technicians were not adequate to obtain meaningful data and as such, this information was excluded in the review.

The licensee's time records for CP&L employees had been maintained on a quarterly basis until December 11, 1992, and semi-monthly subsequent to this date. Quarterly record keeping did not allow for the determination of maximum weekly overtime. The licensee was able to determine contractor overtime by a review of invoices. Inclusion of contractor time into the data base occurred during

1993. The licensee expended approximately 200 resource hours in obtaining the requested data.

The inspector reviewed Administrative Procedure, Volume I, Book 1, Revisions 128, 131, 134, 140, 146, 149, and 150, Section 4.4, which govern overtime scheduling. The licensee's procedural requirements in general agree with NUREG 0737 guidance and TS requirements. The licensee microfilms excess overtime authorizations soon after the time period has expired and these are not readily retrievable. There are in excess of 1400 excess overtime authorizations on microfilm for the time period of interest. The inspector selected several individuals for a specific time period and reviewed their excess overtime authorizations and time sheets. The records revealed that no one had worked in excess of their authorizations. The inspector noted that some of the authorizations were for individuals while others were blanket authorizations for groups. The inspector did not determine if authorizations were issued after the completion of work. The inspector previously reviewed excess overtime records for Operations (IR 325,324/93-27). The inspector determined that no operators had exceeded their authorized overtime hours. He noted the licensee did not meet the intent of the guidance in that several individuals were allowed to work in excess of 14 continuous days. The licensee's procedure required the Plant General Manager to authorize excess overtime. However, he had delegated this authority to a lower level. A Violation (325,324/93-27-03) was issued for not following procedure. The licensee has addressed this issue. The inspector also determined that the licensee has not performed an audit on overtime usage in the past two years.

No violations or deviations were identified.

c. Plant Nuclear Safety Committee (40500)

The inspector attended the PNSC meeting conducted on April 7, 1994. The inspector verified that the TS required quorum was present. The meeting agenda included the following:

- Licensee Amendment Request (TSC 94TSB02)
- Relocation of Instrument response Times to the Updated FSAR
- Safety Review of EER 94-0082
- Special Control Room Isolation Mode of CBHVAC
- Enforcement Discretion for 12 hour LCO on CBEAF associated with PM 94-001.

The inspector noted active participation by all PNSC members. Special emphasis was placed on resolving EER 94-0082, which may be used to support a possible Enforcement Discretion request associated with outage work on the CBEAF system.

On April 14, the PNSC reviewed the removal of fire protection requirements from the Technical Specifications and the procedure revisions which implement that change. They also reviewed the APRM/IRM configuration issue where the rod monitor control system (RMCS) is configured differently than the Reactor Protection System (RPS) and not as described in the FSAR. The licensee determined that two other plants are configured like Brunswick, which is configured in accordance with the drawings. GE is aware of the issue but has no basis for the configuration. The current configuration presented no safety issues. The inspector considered the licensee's evaluation to be logical and acceptable.

On April 21, the PNSC's agenda included approval of an LER involving penetration leakage in excess of TS allowance and a Violation response. The Violation involved the failure to test all applications of a safety-related valve. The licensee considered the failure to include an Operation review of the modification test was a causal factor. The PNSC's discussion of the testing issue focused on the larger issue of vulnerability by not including Operations in the review of modification testing. The PNSC discussions focused on potential safety issues.

On April 28, the PNSC's agenda included a presentation of the Corrective Action Program Trends by Regulatory Affairs and the Monthly Temporary Modifications Report by Technical Support. The PNSC questioned the Technical Support presenter as to the plans to eliminate the current temporary modifications. All but one would be eliminated either by a plant modification or by removal of the condition which required the temporary modification. The inspector noted that the PNSC's discussions reflected good member review of this issue. Two LERs were also discussed.

The PNSC meetings have improved and it appears the members are having more time to review issues and agenda items. Their discussions are more focused and directed to safety issues.

The inspector reviewed the minutes for those meetings not attended to confirm that decisions and recommendations were reflected in the minutes and followup of corrective actions was completed. There were no concerns identified relative to the PNSC meeting attended. The resolution of safety issues presented during the meeting was considered acceptable.

7. Exit Interview (30703)

The inspection scope and findings were summarized on May 6, with those persons indicated in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection findings in the summary. Dissenting comments were not received from the licensee. Proprietary information is not contained in this report.

<u>Item Number</u>	<u>Description/Reference Paragraph</u>
Violation 325/94-09-01	Failure to follow procedures of Technical Specification 6.8.1, paragraph 3.b.
Violation 324/94-09-02	Failure to evaluate the RHR system operability within 72-hours of the discovery of the broken anchor bolts is a Violation of Technical Specification 3.7.5, paragraph 4.
Non-Cited Violation 325,324/94-09-03	Failure to follow procedural requirements for compensatory action on inoperable or degraded fire barriers and/or equipment, paragraph 3.b.

Additionally, five examples of a previously cited Violation were identified regarding configuration control (paragraph 2.c & 3.a).

8. Acronyms and Initialisms

ACR	Adverse Condition Report
CBEAF	Control Building Emergency Air Filters
CBHVAC	Control Building Heating, Ventilation, & Air Conditioning
CW	Circulating Water
DG	Diesel Generator
DVM	Digital Volt Meter
E&RC	Environmental & Radiation Control
ECCS	Emergency Core Cooling System
EDBS	Engineering Data Base System
EER	Engineering Evaluation Report
EHC	Electro Hydraulic Control System
ENS	Emergency Notification System
FPAO	Fire Protection Auxiliary Operator
FSAR	Final Safety Analysis Report
HP	Health Physics
I&C	Instrumentation and Control
IR	Inspection Report
ISI	Inservice Inspection
LCO	Limiting Conditions for Operation
LER	Licensee Event Report
LPCI	Low Pressure Coolant Injection
MST	Maintenance Surveillance Test
MTF	Maintenance Training Facility
MOV	Motor Operated Valve
NRC	Nuclear Regulatory Commission
PA	Protected Area
PCB	Power Circuit Breaker
PMAC	Programmable Multiple Axis Controller
PMS	Project Management Support
PMTR	Post Maintenance Testing Requirements
PNSC	Plant Nuclear Safety Committee

RCIC	Reactor Core Isolation Cooling
RFO	Refueling Outage
RHR	Residual Heat Removal
SAS	Secondary Auxiliary Station
SFP	Spent Fuel Pool
SRO	Senior Reactor Operator
STA	Shift Technical Advisor
SW	Service Water
TS	Technical Specification
UAT	Unit Auxiliary Transformer
VOM	Volt Ohm Meter
WR/JO	Work Request/Job Order