



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

Report No.: 50-395/84-37

Licensee: South Carolina Electric and Gas Company
Columbia, SC 29218

Docket No.: 50-395

License No.: NPF-12

Facility Name: Summer

Inspection Conducted: December 1 - 31, 1984

Inspector: Charles W. Hehl
C. W. Hehl

January 22, 1985
Date Signed

Approved by: F. S. Cantrell
F. S. Cantrell, Section Chief
Division of Reactor Projects

1/23/85
Date Signed

SUMMARY

Scope: This routine, unannounced inspection entailed 136 inspector-hours on site in the areas of plant tours; operational safety verifications; monthly surveillance observations; monthly maintenance observations; plant startup from refueling observations; onsite followup of operating reactor events; independent inspection effort; review of inspector followup items and licensee action of previous enforcement matters.

Results: Two violations were identified-failure to establish a fire watch for fire barrier door IB 310B, paragraph 5; and failure to demonstrate operability of three containment isolation valves prior to entering mode 4, paragraph 3.

8507170009 850129
PDR ADOCK 05000395
G PDR

REPORT DETAILS

1. Licensee Employees Contacted

- *O Bradham, Director, Nuclear Plant Operations
- *K. Woodward, Manager, Operations
- B. Williams, Supervisor of Operations
- M. Quinton, Manager, Maintenance
- *M. Browne, Manager, Technical Support
- *B. Croley, Group Manager, Technical and Support Services
- *M. Irwin, Nuclear Licensing, Specialist
- *R. Campbell, Engineer, ISEG
- *J. Derrick, Associate Manager, Maintenance Engineering
- *C. McKinney, Technical Specialist, Regulatory Compliance
- *A. Koon, Associate Manager, Regulatory Compliance
- *H. Sefick, Associate Manager, Station Security
- *J. Connelly, Deputy Director, Operations and Maintenance

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

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on January 4, 1985, with those persons indicated in paragraph 1 above. The licensee acknowledged the inspection findings. As indicated in paragraph 6 of this report, the licensee expressed a commitment to incorporate into future performances of integrated safeguards testing, a method to ensure that the auto block as well as the auto start functions of the load sequencers are tested. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

3. Licensee Action on Previous Enforcement and Inspector Followup Items (92702)

(Closed) Inspector Followup Item, 84-30-02. This followup item existed to track implementation of a licensee commitment to submit to NRR a revised program schedule for retrieval and analysis of sample coupons from the spent fuel storage racks. The licensee submitted this revised schedule in a letter to NRR on December 14, 1984.

(Closed) Violation, 83-27-04. This two part violation dealt first with inadequacies in the implementation of the Operational QA Plan requirements for listing measuring and test equipment to be controlled and measures for documenting which safety-related tests were performed with each piece of measuring and test equipment. The second part of this violation dealt with the necessity for upgrading the drawing control program, specifically, to eliminate an existing backlog of drawing revisions and to provide marked-up

interim drawing for use following system modification until permanent revisions are available.

The inspector reviewed changes to Nuclear Quality Control Procedure A-NQCP-9, Equipment Control, and Chemistry Procedure CHP-501, Calibration and Standardization of Requirements. These changes incorporated controlled listing of measuring and test equipment, and a methodology for documenting which test equipment was utilized on which safety-related equipment. The inspector also reviewed the Instrument and Control Department program for complying with these requirements. These requirements were determined to be adequately implemented thus closing the first part of this violation.

The second part of the violation dealt with required upgrades to ensure that drawings classified as essential, those considered by Operations to be essential for control and operation of the plant, accurately reflect the as-built condition of the plant. To accomplish this goal, the licensee implemented a program to resolve the existing drawing revision backlog and to require the issuance of interim drawings, which accurately reflect the area of change, following plant modifications requiring changes to essential drawings. These controlled interim drawings are replaced with permanent drawing revisions once generated. The inspector reviewed the results of this upgrade effort and determined that the licensee had brought the backlog of drawing changes under control and changes to the modification program had been implemented to require the issuance of the interim drawings to reflect the as-built condition of the plant. Presently, the licensee is experiencing some problems with the reproducibility of the interim drawings for distribution, but controlled full scale interim drawings are available for use by the control room and the planning and scheduling group. The licensee has committed to resolving this reproduction problem.

4. Unresolved Items*

Unresolved items were not identified during this inspection.

5. Operational Safety Verification (71707, 71710)

The inspector observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the report period. The inspector verified the operability of selected emergency systems, reviewed removal and restoration logs, and tagout records, and verified proper return to service of affected components. Tours of the control, auxiliary, intermediate, diesel generation, service water and turbine buildings were conducted to observe plant equipment conditions including potential fire hazards, fluid leaks, and excessive vibrations, and to verify

*An Unresolved Item is a matter about which more information is required to determine whether it is acceptable or may involve a violation or deviation.

that maintenance requests had been initiated for equipment in need of maintenance. The inspector, by observation and direct interview, verified that the physical security plan was being implemented in accordance with the Station Security plan.

During a tour of the plant on December 19, 1984, conducted by a NRC Region II security inspector accompanied by a licensee security guard, fire door IB 310B was found to be open and unattended. The subject fire door was found to be propped open by insertion of two screw drivers. Upon identification, the licensee security guard immediately returned the door to its required closed position.

Technical Specification (TS) 3.7.10 requires that fire doors separating safety related fire areas be operable at all times. With a fire door inoperable the licensee is to within one hour, establish a continuous fire watch or verify operability of the fire detector on at least one side of the inoperable door and establish an hourly fire watch patrol.

Subsequent review of this finding has determined that the cognizant licensee organization was unaware that fire door IB 310B was inoperable and therefore had not implemented the compensatory action required by TS 3.7.10. This failure to satisfy the requirements of TS 3.7.10 is a violation. Failure to establish required fire watch for fire door IB 310B. (84-37-01)

6. Surveillance Observation (61726)

During the inspection period, the inspector verified by observation/review that selected surveillances of safety-related systems or components were conducted in accordance with adequate procedures, test instrumentation was calibrated, limiting conditions for operation were met, removal and restoration of the affected components were accomplished, test results met requirements and were reviewed by personnel other than the individual directing the test, and that any test deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

During this review the following deficiency was identified.

The inspector reviewed data taken during the performance of Surveillance Test Procedure (STP) 125.005, Integrated Safeguards Test, for safeguards trains A and B.

One of the purposes of STP 125.005 is to verify that for events such as a loss of off site power or a loss of off site power in conjunction with an Engineered Safeguards Feature (ESF) actuation signal, the diesel generators start and energize their associated emergency power buses and auto-connect appropriate safety system loads through the load sequencers. In addition to the auto-connect function, the load sequencers block auto start of certain loads depending upon equipment status and initiating signal. The above verifications are required by TS 4.8.1.1.2 to demonstrate diesel generator operability.

Inspector review of data collected during performance of STP 125.005 determined that due to system configuration at the time of the test, the capability of the load sequencer to energize component cooling pump A had not been verified. Additionally, the capability of the sequencers to block auto start of certain "swing" pumps (component cooling pump C, service water pump C and changing pump C) upon receipt of an ESF actuation signal had not been verified. The inspector informed licensee management of this finding and these load sequencer functions were subsequently verified and documented prior to unit restart.

In that a malfunction of the auto block sequencer function would be readily apparent during the performance of these tests, coupled with the licensee's prompt action to verify this function and a subsequent licensee commitment to implement a procedure change to require verification of this function during future performances of STP 125.005 appears adequate to resolve this issue. This licensee commitment will be tracked as an Inspector Followup Item (84-37-02).

No violations or deviations were identified in this area.

7. Maintenance Observation (62703)

Station maintenance activities of selected safety-related systems and components were observed/reviewed to ascertain that they were conducted in accordance with regulatory requirements. The following items were considered in this review: the limiting conditions for operations were met; activities were accomplished using approved procedures; functional testing and/or calibrations were performed prior to returning components or systems to service; quality control record were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; and radiological controls were implemented as required. Maintenance Work Requests were reviewed to determine status of outstanding jobs to assure that priority was assigned to safety-related equipment which might affect system performance. No violations or deviations were identified in this area.

8. Plant Startup From Refueling (71711)

The inspector reviewed plant procedures and conducted discussions with control room operators and operations management to verify that the licensee had developed administrative controls and checklists for returning to an operable status those safety-related systems and/or components which underwent maintenance or were disturbed during the outage. The inspector reviewed plant startup procedures to verify that these procedures required adherence to the facility TS and other commitments pertaining to startup testing and power operation prerequisites. Following system realignments in preparation for startup, the inspector performed walkdown of appropriate

loads depending upon equipment status and initiating signal. The above verifications are required by TS 4.8.1.1.2 to demonstrate diesel generator operability.

Inspector review of data collected during performance of STP 125.005 determined that due to system configuration at the time of the test, the capability of the load sequencer to energize component cooling pump A had not been verified. Additionally, the capability of the sequencers to block auto start of certain "swing" pumps (component cooling pump C, service water pump C and changing pump C) upon receipt of an ESF actuation signal had not been verified. The inspector informed licensee management of this finding and these load sequencer functions were subsequently verified and documented prior to unit restart.

In that a malfunction of the auto block sequencer function would be readily apparent during the performance of these tests, coupled with the licensee's prompt action to verify this function and a subsequent licensee commitment to implement a procedure change to require verification of this function during future performances of STP 125.005 appears adequate to resolve this issue. This licensee commitment will be tracked as an Inspector Followup Item (84-37-02).

No violations or deviations were identified in this area.

7. Maintenance Observation (62703)

Station maintenance activities of selected safety-related systems and components were observed/reviewed to ascertain that they were conducted in accordance with regulatory requirements. The following items were considered in this review: the limiting conditions for operations were met; activities were accomplished using approved procedures; functional testing and/or calibrations were performed prior to returning components or systems to service; quality control record were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; and radiological controls were implemented as required. Maintenance Work Requests were reviewed to determine status of outstanding jobs to assure that priority was assigned to safety-related equipment which might affect system performance. No violations or deviations were identified in this area.

8. Plant Startup From Refueling (71711)

The inspector reviewed plant procedures and conducted discussions with control room operators and operations management to verify that the licensee had developed administrative controls and checklists for returning to an operable status those safety-related systems and/or components which underwent maintenance or were disturbed during the outage. The inspector reviewed plant startup procedures to verify that these procedures required adherence to the facility TS and other commitments pertaining to startup testing and power operation prerequisites. Following system realignments in preparation for startup, the inspector performed walkdown of appropriate

portions of several systems disturbed during the outage to independently ascertain that they had been properly returned to service.

In preparation for return to power from this extended refueling outage, the licensee conducted an alignment of all systems. These alignment verifications were accomplished using the approved System Operating Procedure (SOP) for each system. Each of SOPs include valve, electrical and instrument lineup sheets which are performed by an operator and then reviewed and verified complete by a licensed Senior Reactor Operator. The inspector reviewed a sample of ten of these completed SOPs and performed an independent walkdown inspection of two safety systems. No significant deficiencies were identified during this review.

The licensee General Operating Procedures (GOP) 11, 1, 2, 3 and 4 are the controlling documents for taking the plant from the completion of fuel load back to full power operation. A review of these procedures determined that each procedure includes check sheets and associated sign-offs which require the operator to verify prior to changing plant modes, that system alignments are current and to evaluate whether systems which were out of service or disturbed require realignment. In addition to these alignment checks, each procedure requires the operator to review the Equipment Removal and Restoration Log, the Danger Tag Log and the Maintenance Work Request Log for any existing equipment/configuration limitations prior to each plant mode change. The GOP's were found to include steps to trigger and sign-offs to verify completion of required surveillance testing. Surveillance check lists in the form of attachments to the licensee's General Test Procedure (GTP) 702, Surveillance Activity Tracking and Triggering, identify surveillance activities required to be current for each plant mode change. The inspector reviewed the completed GOP's, GTP 702 attachments and a sampling of the associated surveillance data sheets at selected points during plant startup. The following deficiency was identified during this review.

On December 13, 1984, during review of completed GOP-1, Plant Startup and Heatup From Cold Shutdown to Hot Shutdown, the inspector determined that required stroke time testing of feedwater reverse flush valves XVG-1678 A, B and C had not been completed prior to changing plant modes.

TS 3.6.4 requires these valves to be operable in plant modes 1, 2, 3 and 4. TS 4.6.4.3 requires demonstration of this operability by determining that the isolation time of these valves is within its limit when tested pursuant to the licensee's Inservice Inspection Program. TS 4.0.4 precludes entry into an operational mode unless the surveillance requirements associated with the limiting condition for operation have been satisfied.

Valves XVG 1678 A, B and C are identified in TS Table 3.6-1 as Phase "A" containment violation valves and receive separate isolation signals from protective trains "A" and "B". Station Surveillance Test Procedure (STP) 130.001, Valve Operability Testing, implements the TS 4.6.4.3 Inservice Inspection Program isolation time measurement

requirements for these valves by requiring them to be stroke timed (closed) in response to signals from both protection train "A" and protection "B" switches. On December 13, 1984, the plant was taken from mode 5 to mode 4 but the required testing of these valves in response to a signal from protection train "B" had not been performed. This failure to demonstrate operability of these containment isolation valves in response to both protection trains prior to entering mode 4 is a violation of TS 4.0.4 (84-37-03).

Since valves XVG 1678 A, B and C are normally closed (their phase "A" isolation position) except for brief periods of time during plant startup and these valves had been successfully stroke timed in response to protection train "A" signal, the safety significance of not verifying the stroke time in response to protection train "B" is of minimal safety significance. However, what is of concern is that the licensee's controls to assure required surveillances were completed prior to mode change did not prevent this occurrence.

As indicated above, the licensee's GOP's contain triggers and sign-offs to assure required surveillances are complete prior to changing modes. GOP-1, Step IV 3.g. contains the trigger and sign-off designed to accomplish this for mode change 5 to 4. Step IV 3.g. requires the operator to review General Test Procedure (GTP) 702, Attachment IIC., which lists the surveillances required to be complete prior to changing from mode 5 to 4. Inspector review of these documents determined that GTP 702 attachment IIC. utilized for mode change on December 13, 1984 identified STP 130.001 as not complete, yet, GOP-1 step IV 3.g. had been initialed as complete. It is this apparent inadequate review by operations prior to mode change that is the significant element of the above violation. Inspector review of subsequent mode changes identified no other instances of this nature.

The inspector witnessed unit startup following refueling and observed and/or reviewed documentation of selected startup tests. The inspector verified that the startup was performed in accordance with technically adequate and approved procedures which had been revised to reflect changes made to the facility and to the startup test program, and that startup activities were conducted in accordance with TS requirements. The inspector verified that surveillance test required to be performed before the startup were satisfactorily completed. The following startup activities were observed or reviewed.

<u>Activity</u>	<u>Controlling Procedure</u>
Initial Criticality	Reactor Engineering Procedure (REP) 107.003
Moderator Temperature Coefficient Measurement	STP 210.002
Control Rod Worth Measurement	REP 103.001

Boron Endpoint
Measurement

REP 107.008

RCCA Rod Drop Time
Measurement

STP 208.001

No violations or deviations were identified during the initial criticality and startup testing phase of this inspection. Criticality was achieved at 8:46 p.m., on December 18, 1984.

9. Followup of Events at Operating Reactors (93702)

On December 18, 1984, the unit was brought critical following an extended refueling outage which began on September 28, 1984.

At 10:55 a.m., on December 27, 1984, with the unit at 75% power, the unit experienced a reactor trip from a low steam generator level signal coincident with a steam flow greater than feedwater flow mismatch. The trip occurred when a technician, installing test equipment for performance of a load rejection test, inadvertently caused the steam generator programmed level control signal to generate a false low level demand. This false low level control signal caused the closure of feedwater regulating valves resulting in the reduction of feedwater flow. Prior to the test equipment installation, nuclear power range channel, N-42, had been placed in test for calibration, requiring the tripping of the associated low steam generator level bistables. The unit was successfully restarted at 2:50 p.m., on December 27, 1984.

10. Independent Inspection Effort (92706)

A. First Refueling License Conditions and Commitments

As previously reported in IE Reports 84-30 and 84-34, the inspector is reviewing the licensee's implementation of first refueling license conditions and commitments and will report the results of this continuing review in subsequent reports.

During this inspection period, the inspector reviewed meeting minutes from a Plant Safety Review Committee (PSRC) meeting held on December 6, 1984, at which the status of these license conditions and commitments were reviewed in preparation for unit restart. The PSRC review determined that the first refueling license conditions and other commitments to be accomplished during this outage had been satisfied.

Facility license conditions 2C(23a) required that prior to startup after the first refueling outage, the licensee implement emergency operating procedures based on guidelines approved by the NRC. Prior to startup from this first refueling outage new emergency operating procedures (EOPs) based on Westinghouse Owner's Group Emergency Response Guidelines, revision 1, were implemented. As identified in the licensee's response to NRC Generic Letter 82-33, EOP Generation

Package, the licensee conducted training on these new EOPs prior to implementation. The inspector reviewed this operator training and observed two days of one of the four day training courses. The training was conducted in two phases, a classroom phase and a simulator phase. During the classroom phase, the background and purpose of the EOPs was presented followed by a step-by-step review of each EOP. The simulator portion was conducted on the licensee's plant specific simulator and presented the students with a series of scenarios designed to allow practice using the new EOPs. This training was presented to each shift during it's normal training week such that each shift was trained as a team. Prior to unit restart, all licensed operators assigned to shift duties had received this training. The inspector will review other portions of the licensee's program for generating these new EOPs during subsequent inspections.

B. Training of Operators on Plant Modifications

During this refueling outage, a significant number of plant modifications were implemented. To familiarize plant operators with the most pertinent of these changes, the Operations Department conducted training on these modifications prior to unit restart. The inspector attended one of these training sessions and found the content and method of instruction adequate to familiarize operators with these changes. Subsequent discussions with Training Department personnel determined that training on these pertinent modifications will also be included in the Operator Requalification Training.

No violations or deviations were identified in this area.