



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

Report No.: 50-395/84-30

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

Docket No.: 50-395

License No.: NPF-12

Facility Name: V. C. Summer

Inspection Conducted: October 1-31, 1984

Inspector: *C. W. Hehl* 11/21/84
C. W. Hehl Date Signed

Approved by: *F. S. Cantrell* 11/21/84
F. S. Cantrell, Section Chief Date Signed
Division of Reactor Projects

SUMMARY

Scope: This routine resident inspection involved 214 inspector hours on site in the areas of plant tours; operational safety verifications; monthly surveillance observations; monthly maintenance observations; review of spent fuel pool modification; preparations for refueling, inspector followup items; and implementation of facility license commitments.

Results: One violation was identified - failure to implement the locked valve control program.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *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
- *P. Fant, Manager, Nuclear Quality Control
- *R. Fowlkes, Regulatory Interface Engineer
- *M. Irwin, Nuclear Licensing Specialist
- *A. Koon, Associate Manager, Regulatory Compliance
- *D. Malkmus, Independent Safety Engineering Group
- *F. McKinnon, Associate Manager, Project Engineering
- *G. Moffatt, Associate Manager, Project Engineering
- *J. Proper, Quality Assurance Supervisor, Operations
- *G. Putt, Manager Scheduling & Materials

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

Other Organizations

- *J. Mathis, NRC Inspector, Region II
- *E. Girard, NRC Inspector, Region II

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on November 2, 1984, with those persons indicated in paragraph 1 above. The violation, failure to implement the locked valve control program, was discussed during the exit, but the inspector stated that he needed additional information concerning this issue prior to formally identifying this item as a potential violation. The licensee was informed by the inspector that this item was a potential violation of regulatory requirements on November 6, 1984. The licensee acknowledged this inspection finding.

3. Inspector Follow-up Items

(Closed) Inspector Follow-up Items (IFI), 84-26-02: As indicated in paragraph 8.a of this report, the inspector reviewed documentation addressing this concern.

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 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.

On October 29, 1984, during a routine system alignment verification, the inspector determined that valve XVB 9508B, component cooling water inlet to "B" heat exchanger, was open, but not "locked open" as required by the licensee equipment control program. The on duty operations shift supervisor was informed of this finding and immediately re-instated the locking device on this valve. Further inspector review determined that the locking tab for valve XVB 9508B had apparently not been installed following a return to service by this valve on or about October 16, 1984.

Technical Specification 6.8.1 requires that written procedure be established, implemented, and maintained for applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Appendix A recommends procedures for equipment control (e.g., locking and tagging). Station Special Instruction (SI) 84-05, Locked Valve Control, implements the "locking" portion of this equipment control requirement. SI 84-05 and System Operating Procedure 118, Component Cooling Water, identify valve XVB 9508B's required position as "locked open". Failure to implement the requirement to lock this valve in the open position constitutes a violation of TS 6.8.1 (84-30-01). This violation is similar to a violation identified to the licensee in a Notice of Violation dated August 27, 1984. Details of this previous violation are delineated in IE Report 50-395/84-23.

6. 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: 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.

7. Surveillance Observation (61726)

During the inspection period, the inspector verified by observation/review that selected surveillances of safety-related systems or components was conducted in accordance with license requirements. The inspector verified that testing was performed 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.

No violations or deviations were identified.

8. Spent Fuel Pool Rerack (50095)

a. Review of Boraflex Chemistry Records.

The inspector reviewed chemistry records, vendor certificates of compliance, production records and post-production records for the boraflex material (utilized as a poison in the racks). These records provided traceability of the boraflex material to the Region I and Region II racks. The inspector also reviewed vendor and licensee quality assurance surveillance audits which verified on a sampling basis that the boraflex material had been installed in the required cell locations. This review closes inspector followup item 50-395/84-26-02, Records for chemistry on boraflex used in spent fuel racks.

b. Review of Boraflex Specimen Surveillance Program.

The inspector examined the licensee program for verifying the long term integrity of the neutron absorber material employed in the high-density fuel racks. This surveillance program utilizes sample coupons containing boraflex samples obtained from the material lots used to fabricate the racks. These coupons are to be positioned in selected fuel rack locations to monitor the rack environment. These coupons are withdrawn from the spent fuel pool and analyzed, to determine continuing rack poison integrity, in accordance with a pre-determined schedule.

The inspector reviewed Reactor Engineering Procedure (REP) 108.001, Surveillance Test Program for Boraflex Neutron Absorbing Material contained in the Spent Fuel Racks, Revision 0. The program, as described in REP 108.001, is consistent with the surveillance program described in licensee's letters to NRC of January 23, 1984 and March 6, 1984 with the following exception.

The REP 108.001 schedule for sample retrieval and analysis does not include the 90 and 180 day sampling points. Discussions with the licensee has determined that these two sample points were eliminated based on a recommendation from Joseph Oat Corporation (JOC), the rack manufacturer. According to the licensee, the JOC recommendation was based on a determination that no change in boraflex material properties has been observed at facilities employing similar rack construction.

The inspector discussed this sampling frequency change with NRR on October 23, 1984. NRR indicated that based on the boraflex material integrity observed at other facilities, the omission of the 90 and 180 day samples should not be a problem, although, the licensee needs to submit the revised program schedule. The licensee has committed to submitting to NRR their revised surveillance schedule. This commitment will be tracked as inspector followup item 84-30-02.

Finally, the inspector reviewed licensee documentation to determine if the materials used to fabricate the boraflex coupons, utilized in this surveillance program, were representative of the material installed in the racks. This review determined that the boraflex material in the coupons was obtained from the same production lots as that utilized in the racks. The boraflex coupons were installed in the spent fuel pool in October 25, 1984.

- c. Review of the licensee controls for Fuel Movements in the Spent Fuel Pool.

Since the licensee high density fuel storage design employs three different regions, each region containing a different poison concentration, stringent administrative controls are required to preclude loading errors. The inspector reviewed the following procedures for incorporation of these administrative controls.

REP 100.001, Special Nuclear Material Inventory and Control,
Revision 1.

REP 107.001, Controlling Procedure for Refueling and Refueling Startup
Testing, Revision 0.

REP 107.002, Core Shuffle, Revision 0.

Fuel Handling Procedure (FHP) 601, Refueling Organization.

Chemistry Procedure (CP) 612, Out of Specification Handling and Reporting Revision 3.

CP 618, Chemistry Specifications for Borated Systems and Tanks, Revision 4.

CP 602, Chemistry Reporting, Revision 5.

The above procedure review determined that the following administrative controls, to preclude loading errors, are presently in place.

- The level of supervision of fuel movements both within the reactor building and the fuel handling building during refueling operation is programmatically set at the senior reactor operator level. Specifically a shift supervisor and a control room supervisor, other than those associated with the normal operating shift, will be assigned.
- Initial movement of fuel assemblies in the spent fuel pool will be only into Region I (highest poison concentration) locations. Subsequent movements of fuel assemblies to Region II and III locations will only occur after review of enrichment vs. burn up requirements. Any such proposed subsequent movement of fuel assemblies receives an independent peer review and is approved by the Manager of Technical Support.
- Procedures for documenting the location of fuel assemblies within the spent fuel pool utilize the same techniques employed for core verification.
- Although not a Technical Specification requirement, the licensee's procedures require that the spent fuel pool boron concentration be maintained greater than or equal to 2000 ppm. The maintenance of pool boron concentration at this level precludes the possibility of inadvertent criticality should a loading error occur.
- Since several fuel storage rack cells have been identified through "drag testing" to be unacceptable locations for storage of fuel assemblies, (none of the cells are in Region I), the licensee has established a method to preclude placement of fuel assemblies in these locations. The licensee has placed metal inserts designed to hold burnable poison assemblies in these cells thus effectively blocking the insertion of fuel assemblies in these locations. Additionally, the licensee has committed to permanently identifying these unacceptable locations in procedures controlling movement of assemblies into and within the spent fuel pool.

- The level of supervision and specific qualifications of personnel performing movement of fuel within the spent fuel pool, at times other than refueling, will be programmatically addressed. The level of supervision will be established as a minimum at the licensed senior reactor operator level. This commitment will be implemented prior to moving fuel within the fuel handling building following the present refueling outage.

The administrative controls the licensee has in place appear adequate to preclude spent fuel pool loading errors during the current refueling outage. The combination of the present controls and those additional controls yet to be implemented appear adequate to preclude foreseeable future fuel assembly movement problems. The above licensee commitments will be tracked for implementation as inspector followup item 84-30-03.

No violations or deviations were identified in this area.

9. Preparation For Refueling (60705)

Prior to fuel movement, the inspector reviewed the licensee's refueling procedures to verify that technically adequate, approved procedures were available for each of the following areas:

- a. Fuel handling equipment testing
- b. Fuel handling, transfers, and core verification
- c. Inspection of fuel to be reused
- d. Core and fuel bundle reconstitution

The following procedures were reviewed and determined to be adequate to accomplish the intended functions.

- FHP 601, Refueling Organization, Revision 5
- FHP 602, Limitations and Precautions For Handling New and Partially Spent Fuel Assemblies, Revision 3
- FHP 604, Functional Testing of the Fuel Handling Systems, Revision 4
- FHP 608, Transfer of New Fuel Assemblies to the New Fuel Elevator, Revision 4
- FHP 611.2, Control Rod Drive Shaft Unlatching Tool, Revision 4
- FHP 611.9, Refueling Machine Operation, Revision 2
- FHP 611.10, Fuel Transfer System, Revision 3
- FHP 611.18, Portable RCC Change Tool Operation, Revision 0
- REP 107.002, Fuel Shuffle, Revision 0
- REP 106.006, Portable Underwater Television System Installation, Operation and Removal Including Fuel Inspection and Core Mapping, Revision 0
- Health Physics Procedure (HPP) 408, Fuel Movement Control, Revision 2

No violations or deviations were identified in this area.

10. Review of Facility License Conditions

The inspector reviewed documentation associated with specific facility license conditions required to be met prior to startup following the first refueling outage.

(Closed) License Condition 2.C.(7), Thermal Sleeves. This item was closed by NRC letter, dated August 23, 1984, from T.M. Novak (NRC) to O.W. Dixon, Jr. (SCE&G). (OI 82-41-02)

(Open) License Condition 2.C.(9), Mechanical Performance. This condition requires the licensee to examine fuel rods for baffle-jetting failure as specified in Section 4.2.3 of the Safety Evaluation Report. Inspector review of the licensee refueling procedures determined that those fuel assemblies subject to this type failure will be inspected. (OI 82-41-03)

(Open) License Condition 2.C.(10), Overpressure Protection. This condition requires the licensee to install an NRC Staff - approved low-temperature overpressurization protection system. The NRC staff in License Amendment 26 issued September 24, 1984 has approved and required implementation of a overpressurization protection system utilizing the residual heat removal system suction relief valves. A plant modification to implement this requirement is in progress. (OI 82-41-04)

(Closed) License Condition 2.C.(13), Steam Generation Inspection Ports. This license condition was closed by NRC letter, dated June 7, 1984, from T.M. Novak (NRC) to O.W. Dixon, Jr. (SCE&G). (OI 82-41-06)

(Closed) License Condition 2.C.(15), RHR Suction Valve Modification. This license condition was deleted by License Amendment No. 29, issued October 15, 1984. (OI 82-41-07)

(Open) License Condition 2.C.(16), Cable Tray Separation. Modifications are in progress to subject cable trays. (OI 82-41-08)

(Open) License Condition 2.C.(17), Alternate Shutdown System. Modifications are in progress to install a source range neutron flux monitor on the Control Room Evacuation Panel. (OI 82-41-09)

(Open) License Condition 2.C.(19), Instrument and Control Vibration Tests for Emergency Diesel Engine Auxiliary Support Systems. This license condition is being satisfied by floor monitoring the control panels on a vibration-free floor area. Modifications implementing this requirement have been completed on Diesel Generator "B" and are in progress for Diesel Generator "A". (OI 82-41-11)

(Open) License Condition 2.C.(23)a., Procedures for Transients and Accidents. The licensee has generated new Emergency Operating Procedures (EOP) based on Westinghouse Owners Group Emergency Response Guidelines, Revision 1. Operators are presently being trained on these new EOPs. (OI 82-41-13)

(Open) License Condition 2.C.(23)d., Inadequate Core Cooling Instruments. This license condition required upgrading of the inadequate core cooling instrumentation's incore thermocouple system. The licensee program for accomplishing this upgrade was approved by NRC in a letter of August 3, 1984 from T.M. Novak (NRC) to O.W. Dixon, Jr. (SEC&G). The plant modification implementing this upgrade is in progress. (OI 82-41-16)

(Open) License Condition, Attachment 1, Condition 6, Audibility Problems. A modification to alleviate the audibility problems associated with the evacuation alarm in high noise areas is in progress.