



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report No. 50-395/82-41

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

Facility Name: V. C. Summer

Docket No. 50-395

License No. NPF-12

Inspection at V. C. Summer Nuclear Station near Jenkinsville, S. C.

Inspector: John F. Rogge 9/2/82
J. L. Skolds Date Signed

Approved by: H C Dene /fn 9/8/82
V. L. Brownlee, Section Chief, Division of Date Signed
Project and Resident Programs

SUMMARY

Inspection on July 1 - August 13, 1982

Areas Inspected

This routine, unannounced inspection involved 200 inspector-hours onsite in the areas of Preoperational Test Procedure Results Review, Plant Tour, Open Item Review, TMI Action Plan Item Review, Surveillance Test Procedures Performance, 50.55(e)/Part 21 Review, Startup Test Procedure Review, Initial Fuel Load Witnessing, Independent Inspection Effort, License and Technical Specification Compliance.

Results

Of the ten areas inspected, no items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

Licensee Employees

- *T. C. Nichols, Senior Vice President
- *C. W. Dixon, Vice President Nuclear Operations
- *W. A. Williams, Jr., General Manager Nuclear Operations
- *O. S. Bradham, Station Manager
- *J. G. Connelly, Deputy Plant Manager
- *B. G. Croley, Assistant Manager, Technical Support
- *S. J. Smith, Assistant Manager, Maintenance
- L. F. Storz, Assistant Manager, Operations
- *A. R. Koon, Technical Services Coordinator
- *D. A. Lavigne, Director, Surveillance Systems
- *M. N. Browne, Director, ISEG
- F. J. Leach, Director, Site Engineering
- *M. D. Quinton, Assistant Manager, Maintenance
- *V. R. Albert, Assistant Manager Support Services
- *S. S. Howze, Licensing Engineer
- *J. Woods, General Manager, Construction and QC

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

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on July 16 and August 13, 1982, with those persons indicated in paragraph 1 above. The inspector attended the exit interview of J. York on July 16, 1982.

3. Licensee Action on Previous Inspection Findings

(Closed)(82-26-02) Emergency Lighting. This item involved the failure of the licensee to install emergency lighting in the diesel generator building and the failure to install battery units rated at 8 hours. In a letter dated May 25, 1982 the licensee stated that an inspection of the installation of all emergency lighting would be conducted and a test of all emergency lighting would be performed to verify 8 hour capacity. The licensee's inspection of all emergency lighting revealed other emergency lighting missing. Since the inspection, all required lighting has been installed. The reason for the failure to install the emergency lighting appears to be a personnel error. The inspector reviewed the test results and walked down all the emergency lighting in the plant. Findings were acceptable.

(Closed) (82-26-03) QA Coverage of Fire Protection Equipment. This item deals with the failure to include the installation and preoperational testing of fire protection equipment in the QA program. In a letter dated May 25, 1982 the licensee stated that at one time the emergency lighting was not considered part of the fire protection equipment and therefore no QA/QC coverage was necessary. When the emergency lighting became part of the fire protection equipment the QA/QC coverage was not picked up. The licensee has incorporated coverage of the emergency lighting units into the QC procedures. The inspector reviewed the procedure. Findings were acceptable.

4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve noncompliance or deviations. New unresolved items identified during this inspection are discussed in paragraph 12.

5. Preoperational Test Procedure Results Review

The inspector reviewed the results of preoperational test RP-2, Reactor Protection Response Time Test. The results were reviewed to ensure the indicated results were within the acceptance criteria and that the records indicated the tests were performed in accordance with the procedure. Findings were acceptable.

6. Plant Tour

The inspector conducted plant tours on numerous occasions to observe the housekeeping condition of the plant. The following references were used:

- a. Administrative Procedure (AP)-013, "Housekeeping", Revision 4.
- b. Regulatory Guide 1.39, Housekeeping Requirements for Water Cooled Nuclear Power Plants.
- c. ANSI 45.23-1973, "Housekeeping During Construction Phase of Nuclear Power Plants."

A number of minor discrepancies were noted by the inspector and corrected on the spot by the licensee.

7. Open Item Review

The operating license was issued August 6, 1982. The following license conditions will be tracked by NRC Region II.

Open Item Number	License Condition
82-41-01	Design Verification Program (Section 3.7.4, SSER 4)
82-41-02	Thermal Sleeves (Section 3.9.3, SSER 4)

- 82-41-03 Mechanical Performance (Section 4.2.3, SER)
- 82-41-04 Overpressurization Protection (Section 5.2.2, SSER 4)
- 82-41-05 Inservice Inspection and Testing (Section 5.2.4, SSER 3)
- 82-41-06 Steam Generator Inspection Ports (Section 5.4.2, SER)
- 82-41-07 Residual Heat Removal System (Section 5.4.3, SSER 3)
- 82-41-08 Cable Tray Separation (Section 8.3.3, SSER 4)
- 82-41-09 Alternate Shutdown System (Section 9.5.1, SSER 4)
- 82-41-10 Fire Protection System (Section 9.5.1, SSER 4)
- 82-41-11 Instrument and Control Vibration Tests for Emergency Diesel Engine Auxiliary Support Systems (Section 9.5.4, SER)
- 82-41-12 Process and Effluent Radiological Monitoring and Sampling Systems (Section 11.3, SSER 4)
- 82-41-13 Procedures for Transients and Accidents (I.C.1, SSER 4)
- 82-41-14 Special Low Power Testing and Training (I.G.1, SSER 4)
- 82-41-15 Direct Indication of Safety Valve Position (II.D.3, SSER 4)
- 82-41-16 Inadequate Core Cooling Instruments (II.F.2, SSER 4)
- 82-41-17 Plant-Specific Calculations for Compliance with 10 CFR Section 50.46 (II.K.3.31, SSER 1)
- 82-41-18 Upgrade Emergency Support Facilities (III.A.1.2, SSER 4)
- 82-41-19 Plume Exposure Emergency Planning Zones (ASLB Supplemental Partial Initial Decision, August 4, 1982, Section VIII.3)
- 82-41-20 Transportation Planning (ASLB Supplemental Partial Initial Decision, August 4, 1982, Section VIII.4)

- 82-41-21 Food Pathway Contamination (ASLB Supplemental Partial Initial Decision, August 4, 1982, Section VIII.6)
- 82-41-22 Emergency Facilities and Staffing (ASLB Supplemental Partial Initial Decision, August 4, 1982, Section VIII.8)
- 82-41-23 Final NRC Approval or Emergency Preparedness (ASLB Supplemental Partial Initial Decision, August 4, 1982, Section VIII.9)

(Closed) (81-05-15) Technical Specification Comments. All comments on Technical Specifications were resolved.

(Closed) (81-07-04) Radiation Emergency Plan Comments. All comments concerning the Radiation Emergency Plan have been resolved.

(Closed) (81-29-11) STP 120.001 and STP 120.003. This item dealt with comments concerning the above STP's. The comments have been resolved.

(Closed) (81-08-08) Safety Evaluation Report (SER) Comments. All comments on the SER have been resolved or made conditions of the OL.

(Closed) (81-32-06) Comments on the Preoperational Test Program. All comments have been resolved.

(Closed) (82-37-01 and 82-37-02) Comments on Power Operation Test Procedures POT-10 and POT-11. All comments have been resolved.

(Closed) (82-22-01) Service Water Booster Pump Starting Interlock. The inspector reviewed implementing documentation on the removal of the suction pressure interlock on the Service Water Booster Pumps. Findings were acceptable.

(Closed) (82-31-01) Installation of Accelograph on Surge Line. The inspector verified that an accelograph has been installed on the surge line in accordance with the FSAR.

(Closed) (79-31-01) The inspector reviewed STP 115.030. This STP properly implements the commitment made in the FSAR concerning leak checking accumulator check valves.

(Closed) (80-01-04) This item concerned commitments made in the Question and Answer section of the FSAR. All commitments have been completed.

(Closed) (81-31-03) RHR Ventilation Temporary Cable. The licensee has designated 500 feet of cable for emergency use only. The inspector observed the storage of this cable.

8. Startup Test Procedure Review

The inspector reviewed the following Cold Shutdown tests (CST):

- CST-1 RCS Boron Concentration Sampling
- CST-2 Core Loading Instrumentation Check
- CST-3 Initial Fuel Loading
- CST-4 Incore Movable Detector System Checkout
- CST-5 Rod Drive Mechanism Timing Test RCS Cold
- CST-6 Rod Drop Time Measurement RCS Cold-No Flow
- CST-7 Rod Drop Time Measurement RCS Cold-Full Flow

Some minor problems were identified in the procedures. However, all problems were corrected prior to the performance of these procedures.

9. TMI Action Plan Item Followup

(Closed) II.K.1(C.1.5) and I.C.6 Procedures for Verifying Correct Performance of Operating Activities. This item deals with the requirements to have procedures which assures that an effective system of verifying the correct performance of operating activities exist. Supplement No. 1 to the Virgil C. Summer Safety Evaluation Report (SER) (I.C.6) as well as the original SER II.K.1.(C.1.5) addresses the provisions required to exist in the procedures. These provisions include:

- a. Applicability of the guidance of Section 5.2.6 of ANS 3.2 should be extended to cover surveillance testing in addition to maintenance.
- b. In lieu of any designated senior reactor operator, the authority to release systems and equipment for maintenance or surveillance testing or return-to-service may be delegated to an on-shift senior reactor operator, provided provisions are made to ensure that the shift supervisor is kept fully informed of system status.
- c. Except in cases of significant radiation exposure, a second qualified person should verify correct implementation of equipment control measures such as tagging of equipment.
- d. Equipment control procedures should include assurance that control room operators are informed of changes in equipment status and the effects of such changes.
- e. For the return-to-service of equipment important to safety, a second qualified operator should verify proper systems alignment unless functional testing can be performed without compromising plant safety,

and can prove that all equipment, valves, and switches involved in the activity are correctly aligned.

- (5) Positive Controls of test and maintenance procedures to assure proper engineered safety feature functioning.

In a letter to the NRC dated December 11, 1980, the applicant addressed these items. The inspector reviewed the following procedures:

- a. Administrative Procedure (AP) - 217 "Removal and Restoration of Station Equipment".
- b. AP-401 "Maintenance Work Request".
- c. AP-801 "Surveillance Test Program".
- d. AP-204.1 "Safety Tagging".
- e. Station Administrative Procedure (SAP-201) "Danger Tagging".
- f. SAP-300, "Conduct of Maintenance Activities".

Review of the procedures indicated the following:

- a. Prior to removal of equipment from service, the Shift Supervisor and the Control Room Operator perform independent assessments of the consequences of removing the particular equipment from service (AP-217)
- b. Prior to returning equipment to service, an independent verification by a second qualified person is conducted to ensure proper alignment of equipment important to safety. This applies to the tagout system as well as the surveillance test program. (SAP-201, SAP-300).
- c. The System Operating Procedures (SOP) for safety-related systems include valve checklists that specify initial valve/breaker alignment requirements for system startup. A second physical verification of the valve/breaker alignment is not required; however, the completed valve/breaker alignment is reviewed by a qualified operator and signed off.
- d. The Shift Supervisor has the responsibility for granting permission to release plant systems or equipment for maintenance or surveillance testing. (AP-217).
- e. A second qualified person is required to verify proper placement of danger tags. (SAP-201).

10. Surveillance Test Procedure (STP) Observation

The inspector observed portions of the following STP's:

125.005 Integrated Safeguards Test

125.006 Diesel Generator Operability Test

302.048 Source Range (N-31) Operational Check

302.049 Source Range (N-32) Operational Check

Observations were made to ensure the procedures were followed and to independently verify the acceptability of the results. Findings were acceptable.

11. 50.55(e) Report/Part 21 Report Followup

(Closed) (80-29-04) On March 5, 1982 the licensee reported a potential significant deficiency, "Water in valve operator 8886". In a letter dated May 19, 1982 the licensee reported that this item was evaluated to be not reportable. The inspector reviewed the Nonconformance Notice (NCN) identifying the problem and the Maintenance Work Request implementing the NCN. The inspector agreed that the item was not reportable.

(Open) (82-41-24) 7.2KV Switchgear Anti Pump Relay. On June 23, 1982 the licensee reported to Region II a substantial safety hazard as defined by 10 CFR 21. In a letter dated June 29, 1982 the details of a problem with the 7.2KV switchgear's anti-pump relay are described. This item will be reviewed at a later date.

(Open) (82-41-25) Nuclear Drain Valves. On June 18, 1982 the licensee reported to Region II a significant deficiency involving nuclear drain valves. In a letter dated June 30, 1982 the details of the problem are given. This item will be reviewed at a later date.

(Closed) (81-08-09) Emergency Feedwater Pump Lube Oil Cooler. On April 22, 1981 the licensee reported a potential substantial safety hazard to Region II concerning the Turbine Driven Emergency Feedwater Pump Oil Cooler. In a letter dated June 16, 1981 the licensee reported the substantial safety hazard. The item concerned the improper procurement of a lube oil cooler on the turbine driven emergency feedwater pump. The lube oil cooler was not procured to meet the proper design conditions. Although the equipment operated properly during testing, without proper documentation its failure must be assumed. The lube oil cooler was replaced with a heat exchanger that meets all the design requirements. The inspector reviewed the following documentation:

Startup Field Report (SFR)-4449
Construction Work Request (CWR)-5499

Deficiency Notice (DN)-6999E
Field Change Request (FCR)-B 11963M
FCR 14413
FCR 14656
FCR 15019

Findings were acceptable.

(Open) (82-41-26) Diesel Generator Thermostatic Valve. On June 29, 1982 the licensee reported to Region II a substantial safety hazard. In a letter dated July 29, 1982 the licensee reported the details of a problem with a thermostatic control valve on the diesel generators. This item will be reviewed at a later date.

12. Independent Inspection Effort

- a. The inspector reviewed the V. C. Summer Fire Protection Evaluation and walked down a number of fire barriers in the plant. The inspection was performed to determine whether the fire barriers existed and if they do exist, whether they were operable. Findings were acceptable with the following exceptions:

- (1) The inspector identified inoperable fire barriers in the Service Water Building and the Intermediate Building. The apparent cause of the inoperable fire barriers is the fact that they were not installed in accordance with the Fire Protection Evaluation Plan as of August 13, 1982. The licensee is evaluating the scope and magnitude of the fire barrier problem. This item will be identified as unresolved until the scope of the problem is identified. (82-41-27)

- b. The inspector reviewed records concerning the turnover of systems and structures from construction and Startup to Operations. The following procedures were used for reference:

- (1) Administrative Procedure (AP)-1501 Turnover of Structures Facilities and/or Areas, Revision 0.
(2) Administrative Procedure (AP) 517 System Turnover to Operations and Security from Startup.

The records were reviewed to ensure an orderly turnover of systems and structures occurred. Findings were acceptable.

- c. The inspector reviewed the Roving Fire Watch Patrol Procedure, Special Instruction 82-13. This instruction was composed to the draft operating license. Some discrepancies were noted. All discrepancies were corrected prior to issuance of the operating license.

13. Initial Fuel Loading

The inspector observed portions of the initial fuel loading. Some prerequisites were verified by the inspector. Portions of the fuel loading were observed from the Fuel Handling Building, Reactor Building Refueling Areas, the Reactor Building Manipulator Crane and the Control Room. The following procedures were used as references:

- CST-1 RCS Boron Concentration Sampling
- CST-2 Core Loading Instrumentation Check
- CST-3 Initial Fuel Loading

The inspector verified that:

- a. The staffing requirements in Technical Specifications were met.
- b. The proper version of the procedure was in use.
- c. The inverse multiplication plots were being kept.
- d. The boron concentration was being verified in accordance with procedures. The inspector witnessed the drawing and analyzing of a Reactor Coolant System sample for boron.
- e. The personnel access to the refueling floor was controlled.
- f. Personnel at each fueling station understood their duties.

Findings were acceptable.