



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

Report No. 50-395/81-29

Licensee: South Carolina Electric and Gas Company  
Columbia, SC

Facility Name: V. C. Summer

Docket No. 50-395

License No. CPPR-94

Inspection at V. C. Summer site near Columbia, South Carolina

Inspector: *John J. Rogge, for* 11/16/81  
J. L. Skolds Date Signed

Approved by: *Verges L. Brownlee* 11/17/81  
V. L. Brownlee, Section Chief, Reactor Projects Date Signed  
Branch 2B, Division of Resident and Reactor  
Project Inspection

SUMMARY

Inspection on October 1-31, 1981

Areas Inspected

This routine unannounced inspection involved 180 inspector-hours on site in the areas of Open Item Review, Preoperational Test Results Review, Preoperational Test Procedure Review, Preoperational Test Observation, Independent Inspection Effort, Licensee Identified Item Review, Maintenance Program, Surveillance Test Procedure Review, TMI Task Action Plan Item Review.

Results

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

## DETAILS

### 1. Persons Contacted

- \*O. S. Bradham, Station Manager
- \*J. E. Connelly, Deputy Manager
- L. F. Storz, Assistant Manager, Operation
- \*B. G. Croley, Assistant Manager, Technical Support
- \*S. J. Smith, Assistant Manager, Maintenance
- \*K. W. Woodward, Supervisor of Operations
- \*A. R. Koon, Technical Services Coordinator
- \*M. N. Browne, Director, ISEG
- \*P. V. Fant, QC Inspection Coordinator
- \*A. A. Smith, Director, Site Surveillance
- \*C. L. Ligon, Administrative Supervisor
- \*J. W. Parks, Technical Support

Other personnel contacted included technician, and operators.

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on October 19, 1981, and November 2, 1981, with those persons indicated in Paragraph 1 above.

### 3. Licensee Action on Previous Inspection Findings

(Closed) Violation (81-05-11): This item dealt with the failure to properly perform a hydrostatic test. A valve inside the test boundary was shut thereby preventing hydrostatic pressure from being applied to the area in question. The hydrostatic test was redone satisfactorily. A one hundred percent (100%) review of all safety-related hydrostatic test results was performed to ensure all sections of the various safety-related systems were properly tested. No additional problems concerning safety-related systems were identified.

(Closed) Unresolved Item (81-20-04): This item involved the failure to hang deficiency tags on equipment for which a Start up Field Report (SFR) had been written. This problem had been previously identified by the onsite QA group. The corrective action involved the elimination of deficiency tags in the Startup Program. Since the deficiency tags served no purpose other than to locally identify the piece of equipment as deficient, their elimination was not considered to reduce the level of equipment control. The SFR (along with any MWR or CWR) was considered sufficient documentation and any associated danger tags or caution tags would protect personnel and/or the equipment.

### 4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Preoperational Test Procedure Review

The inspector reviewed the following preoperational tests:

- RC-1 Hot Functional Test Outline
- CE-2 Remote Shutdown Panel Functional Test
- CS-6 Boron Concentration Measuring System
- RC-9 Reactor Vessel Head Vent Functional Test

The tests were reviewed for technical adequacy and to verify the test conformed to commitments made in Regulatory Guide 1.68 and the FSAR. Findings were acceptable with the following exceptions:

a. RC-9

The procedure was approved with no data requirements section or acceptance criteria section. A revision to RC-9 was written to include both of the required sections.

6. Surveillance Test Procedures

The following Surveillance Test Procedures (STP) were reviewed:

- STP 103.001 RCS Startup Surveillance
- STP 103.002 Pressurizer Startup/Shutdown Surveillance
- STP 104.001 Boric Acid Makeup to CVCS Flow Test
- STP 104.002 Boron Weekly Status Test
- STP 104.003 Boron System Valve Lineup
- STP 104.004 Heat Tracing Verification
- STP 104.005 Boric Acid Transfer Pump Test
- STP 105.006 ECCS Flow Path Verification
- STP 120.001 Motor Driven Emergency Feedwater Pump Test
- STP 120.003 Emergency Feedwater Valve Verification
- STP 128.002 Fire Protection Monthly Valve Lineup
- STP 144.001 Nuclear Sampling Valve Operability
- STP 145.001 Waste Processing Valve Operability

The procedures were reviewed for technical adequacy and to verify they accomplished the surveillance requirement in the Technical Specification. Findings were acceptable with the following exceptions:

a. STP 103.001

The data sheet implies one can only calculate heatup/cool-down rate once per hour.

The data sheet indicates the incorrect instruments for RC loop Pressure.

## b. STP 103.002

The attached graph is not compatible for plotting cooldown.

Section 1.0 references the incorrect section of the Tech Spec.

The above items will remain open (81-29-07) pending future review.

## c. STP 104.002

The procedure needs curves to relate percent to gallons for the various tanks.

## d. STP 104.003

The procedure omits verification of valve 8146 in all of the valve lineups.

The valve lineups omit valves 8130A, B, 8131A, B. If the "C" Charging/SI pump is the operable pump, these valves need to be verified open.

One of the two paths from the RWST to the RC system is considered to be through the BIT.

## e. STP 104.004

The procedure does not address the condition of the heat tracing not being energized. The Technical Specifications require that each channel be energized. However, if the channel is not energized at the time the surveillance is performed, the operator needs to be instructed how to energize the heat tracing channel.

## f. STP 104.005

The procedure requires differential pressure across the boric acid transfer pump be measured. However there is no suction gage and no instructions how to calculate suction pressure from the boric acid storage tank level.

The valve lineups require valve 8326 A, B be closed. Valves 8326 A&B do not exist.

The above items are considered open (81-29-08) pending future inspector review.

## g. STP 120.001

The ASME Code, Section XI, Paragraph IWP-4600, Summer 78 Addenda, states that when the meter does not indicate the flow rate directly, the record shall include the method used to reduce the data. Section

7.5 of STP 120.001 requires the measurement of flow using a differential pressure gage. However the method used to reduce the differential pressure to indicate the flow rate directly is not included in the procedure.

h. STP 120.003

Valve 1009 A, B, C are verified open. These valves are check valves that are opened with flow through the system and should therefore be verified closed.

The above items are considered open (81-29-11) pending future inspector review.

i. STP 128.002

The following valves are omitted from the valve lineup verification: 6930, 6942, 4095, 4073, 4075, 4136B, 6939, 6786, 4045, 6934.

The above item is considered open (81-29-12) pending future inspector review.

j. STP 144.001

Step 7.3 indicates that one RC loop must be purging through XVT 9331 to the VCT at all times. It is not possible to purge an RC loop through XVT 9331.

This above item will remain open (81-29-09) pending future inspector review.

STP 144.001 and 144.002 will require containment isolation valves to close in 10 seconds. The Technical Specifications require these valves to close in 15 seconds. It was brought to the inspector's attention that there may be numerous differences between closure times in Technical Specifications and those in the STP's. If the STP's are more conservative than the Technical Specifications there may not be a safety concern. However, if the Technical Specifications use the maximum accident analysis times for the closure limits and these times are greater than the design closure time it does not appear to be prudent to consider the valve operable if its closure time has degraded to a point of it being greater than design but less than the Technical Specification limit. This item will remain open (81-29-10) pending future inspector review.

7. Maintenance Procedures

The inspector reviewed the following maintenance procedures:

- MMP 180.1 Emergency D/G Cylinder Piston and Valve Assembly
- MMP 180.2 Emergency D/G Gear Train and Timing Maintenance Procedure
- MMP 180.3 Emergency D/G Comshaft Maintenance Procedure

MMP 180.4 Emergency D/G Governor and Controls Procedure  
 MMP 165.7 Reactor Building Polar Crane and Fuel Handling Building Crane  
 MMP 165.4 Disassembly and Inspection of Spent Fuel Pit Bridge Crane  
     Magnetic Brake  
 MMP 165.10 Spent Fuel Pit bridge Maintenance  
 EMP 115.1 Preventive Maintenance Procedure for C&D Batteries  
 EMP 115.8 Westinghouse Static Inverter Preventive Maintenance  
 EMP 115.014 Battery Output Breaker Maintenance  
 EMP 245.4 Emergency Diesel Generator  
 EMP 245.6 Emergency Diesel Generator Preventive Maintenance  
 EMP 280.3 Disassembly and Reassembly of Square D MCC  
 EMP 280.5 Square D MCC Maintenance

The procedures were reviewed to confirm that they are prepared to adequately control maintenance of safety-related system within applicable regulatory requirements. The following references were utilized:

- a. ANSI N18.7-1976
- b. Administrative Procedure (AP) 400 - Conduct of Maintenance
- c. AP-401 - Maintenance Work Request
- d. AP-402 - Control and Calibration of Measuring and Test Equipment
- e. AP-1200 - Hold Point Guidance
- f. AP-217 - Removal and Restoration of Station Equipment.

Findings were acceptable with the following exceptions:

- a. A number of procedures had hold points but no place for the QC inspector to sign off the hold point. Also in a few cases procedures attachments indicated a procedure hold point existed when in fact the body of the procedure did not indicate a hold point. The specific examples of these problems were brought to the attention of the QC Inspection Coordinator. These problems will be reviewed at a later date.

#### 8. Preoperational Test Observation

The inspector observed portions of preoperational test RC-9, Reactor Vessel Head Vent System. The procedure was observed to verify the testing is conducted in accordance with approved procedures and to independently verify the acceptability of the results. Findings were acceptable with the following exceptions:

- a. The results of RC-9 indicated that the flow rate through the vent system was considerably less than expected. Until the results are reviewed and evaluated this item will remain open (81-29-04).

The inspector observed the performance of various system valve lineups run in support of Hot Functional Testing. The results of the valve lineups were not being properly documented as to why valves were not in the required positions. This was brought to the attention of the licensee. Subsequent valve lineups reviewed were properly documented.

#### 9. Independent Inspection Effort

In a letter dated August 21, 1981, the licensee stated that an enclosure will be constructed over the ladder opening between the 1DA Switchgear Cooling Unit Room and the 1DB Switchgear Room. This enclosure would provide a three hour fire barrier. Until this enclosure is constructed, this item will remain open (81-29-06).

In a letter dated October 28, 1981, the licensee stated that the 36" purge valves will be locked closed during Modes 1 through 4. This will be accomplished by locking shut the manual valves in the air supply to the valve operators. This item will remain open (81-29-05) pending inspector review of the locking device and administrative controls.

The inspector reviewed the valve lineup associated with System Operating Procedure (SOP) 112, Safety Injection System. In the valve Lineup, all motor operated valves have the required position listed as "handwheel disengaged". This does not indicate open or closed. Until the procedure is revised this item will remain open (81-29-13).

#### 10. TMI Task Action Plan Items

##### (Closed) I.A.1.2 Shift Supervisor Administrative Duties

The inspector reviewed Administrative Procedure (AP) 501, "Conduct of Operations". This AP describes or references the duties and responsibilities of the Shift Supervisor. Management Directive Number 11 has been issued by corporate management emphasizing the primary management responsibility of the shift supervisor. The V. C. Summer Safety Evaluation Report (SER), Supplement Number 1 states that the mechanism for relief of the shift supervisor and the provisions for assumption of the command function in the event of a temporary absence of the shift supervisor from the control room and, the duties, responsibilities and authority of the control room operators must be adequately described in an Administrative Procedure. The inspector reviewed AP-501 and found that there is no formal turnover of command when the Shift Supervisor leaves the control room because the Control Room Foreman (SRO) is required to remain in the control room and is actually in charge of the individual activities within the control room. The Shift Supervisor is clearly in charge of all shift activities but is allowed to leave the control room as the situation arises. AP-501 does describe the turnover process if the Shift Supervisor is to be relieved as Shift Supervisor. The duties, responsibilities, and authority of other control room operators is addressed in AP-501.

##### (Closed) I.C.2 Shift Relief and Turnover

The V. C. Summer SER, Supplement No. 1 states that during an IE/NRR management audit, turnover checklists were reviewed and found to be not specific enough in establishing that the critical safety parameters were within limits and that essential safety systems were available and properly

aligned. The inspector reviewed AP-501 and found that the checklists were in sufficient detail to provide an adequate turnover.

(Closed) I.C.4 Control Room Access

The inspector reviewed the V. C. Summer SER, Supplement No. 1 and AP-501. These documents have adequately described the responsibilities of the Control Room Foreman for Control Room Access. The inspector has observed the implementation of AP-501 concerning control room access and considers it adequate.

#### 11. Preoperational Test Results Review

The inspector reviewed the results of the following preoperational tests:

AH-P40 Charging Pump Room Cooling Coil Test  
 AH-P41 RHR-Spray Pump Room Cooling Coil Test  
 AH-P42 Safety MCC Switchgear Cooling Coil Test  
 AH-P43 Relay Room Cooling Coil Test  
 AH-P44 Control Room Cooling Coil Test  
 AH-P45 ESF Switchgear Cooling Coil Test  
 AH-P48 Emergency Feedwater Pump Cooling Coil Test  
 IA-03 Loss of Instrument Air

The results were reviewed to ensure the tests were performed in accordance with the procedure and commitments in the FSAR. The results were also reviewed to ensure the indicated results were within the acceptance criteria. Findings were acceptable.

#### 12. Open Item Review

(Closed) 80-18-01. This item involves the method used to test the hydrogen recombiners. The method used to measure the air flow was not required in Revision 0 to preoperational test HR-1. Revision 1 to HR-1 has been written and it includes a satisfactory method for measuring air flow.

(Closed) 81-08-01. This item dealt with discrepancies found in preoperational test SG-4, Safeguards Test without Blackout. The discrepancies were corrected in a revision to the procedure.

(Closed) 81-08-02. This item dealt with discrepancies found in preoperational test procedure SG-7, Safeguards Test with Blackout. The discrepancies were corrected in a revision to the procedure.

(Closed) 81-08-03. This item dealt with not testing the diesel generators in accordance with Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units used as Onsite Electric Power Systems at Nuclear Power Plants". The procedure was rewritten and the test was performed in accordance with Regulatory Guide 1.108.



(Closed) 80-13-07. This item dealt with instrumentation in the Boron Recycle System not being installed in accordance with the system drawings. Startup Field Report (SFR) 2584 was issued to correct this problem. Construction Work Request (CWR) 4296 was implemented to perform the work.

(Closed) 79-31-03. This item dealt with the failure to measure RHR pump recirculation flow. When the recirculation flow was measured it was found to be less than the required 500 gallons per minute. A modification was made to the recirculation line. The recirculation flow has been measured since the modification and is satisfactory.

(Closed) 79-31-04. This item dealt with performing a section of preoperational test RH-1 concerning the interlock between LoLo RWST level coincident with an SI signal giving an auto open signal to the RHR sump suction valves. The test has been completed.

(Closed) 80-23-03. This item dealt with a concern over the test logs being kept during preoperational tests. The inspector has reviewed a number of preoperational test logs since the item was opened and has found the logs to reflect in general the conduct of the test.

(Closed) 81-14-06. This item dealt with valves 8340A&B being unlocked and out of position after preoperational test CS-7 set the valves and locked them. The test was rerun and the valves were set and properly locked.

(Closed) 81-08-06. This item dealt with preoperational test CS-7 being signed off as acceptable without the pump curves available for review. The acceptance criteria required the data be within  $\pm 10$  percent of the pump curves. The test was satisfactorily rerun and the pump curves provided for review.

(Closed) 80-34-03. This item dealt with trending Startup Field Reports to detect any significant trends. Procedure ZA001 "Trending" has been written and implemented. The inspector reviewed the trending analysis done so far. No unexplained trends were noted and it appears that the implementation of the procedure is adequate.

(Closed) 81-14-07. This item dealt with the failure to sign the Official Test Copy of a completed, approved procedure and the inadequate documentation of instrumentation used in the procedure. Both problems have been corrected.

(Closed) 81-05-13. This item dealt with a difference between the Preservice Inspection (PSI) list of Code Hydros and the Startup list of Code Hydros. In reviewing a revised startup list, ten hydros were identified on the Startup List but not on the PSI list. These ten hydros were either added to the PSI list or had already been incorporated into another hydro.

(Closed) 81-05-12. This item dealt with procedural controls of rehydros when the original procedure has been utilized in the rehydro. The inspector

reviewed a number of rehydros and found the documentation adequately described the procedure steps used in the rehydro.

13. Licensee Identified Items

(Open) 81-29-01. Diesel Generator Start Time. In a letter dated September 18, 1981, the licensee reported that the diesel generators failed to start in the required ten seconds after several days without operation. The cause was attributed to fuel oil header drain down. A final report will be issued when corrective action has been taken.

(Closed) 81-29-02. 7.2KV Switchgear Damage. In a letter dated September 25, 1981, the licensee reported that the 7.2KV switchgear was slightly damaged. The cause of the damage was a metal guard plate, installed to protect the breaker control and indication wiring. The inspector observed the metal guard plates and agreed with the licensee that the electrical function of the breaker was not damaged and that the only time the breaker would be affected is when the breaker was racked out. The inspector agreed that the item was not reportable.

(Open) 81-29-03. Service Water Pump Oil Leakage. In a letter dated September 18, 1981, the licensee reported that all three Service Water Pumps were experiencing oil leakage around the upper bearing pot. As of the date of the letter the licensee had not determined if the item is reportable under 10 CFR 21 or 10 CFR 50.55(e). A final report will issued.

(Closed) 81-04-03. Qualification of Agastat Relays. In a letter dated March 10, 1981, the licensee reported not enough information existed in the qualification report of Agastat Relays, located in the Reactor Coolant Undervoltage/Underfrequency Panel, to verify qualification. The report indicated the relays were removed to a panel with a lower response spectrum. The inspector reviewed Engineering Change Notice (ECN) FM-1600, ECN-1382 R2 and ECN-1234FM, all of which implemented the above change. The inspector also observed the new location of the Agastat Relays. Findings were acceptable.

(Closed) 81-23-02. Rockbestos Cable Failure. This item was inadvertently repeated in inspection report 395/81-23. This item was originally reported as item 81-20-03. Item 81-20-03 is still open.