



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

Report No. 50-395/81-30

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

Facility Name: V. C. Summer

Docket No. 50-395

License No. CPPR-94

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

Inspector:

Frank Jape
for P. T. Burnett

11/19/81
Date Signed

Approved by:

Frank Jape
F. Jape, Section Chief

11/19/81
Date Signed

Engineering Inspection Branch
Engineering and Technical Inspection Division

SUMMARY

Inspection on November 2-6, 1981

Areas Inspected

This routine, unannounced inspection involved 31 inspector-hours on site. Procedures for initial fuel load and zero power physics test were inspected. A plant tour was conducted for familiarization.

Results

No violations or deviations were identified.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *O. S. Bradham, Station Manager
- *B. G. Croley, Assistant Manager, Technical Support
- *S. J. Smith, Assistant Manager, Maintenance
- *D. Moore, QA Manager
- *S. Fipps, Station Reactor Engineer
- *K. W. Woodward, Operations Supervisor
- *A. R. Koon, Technical Services Coordinator
- *P. V. Fant, QC Inspection Coordinator
- *S. S. Howze, Plant Licensing
- *J. W. Parks, Technical Specialist

Other licensee employees contacted included two operators.

Other Organizations

- *C. L. Diefenderfer, GAI

NRC Resident Inspector

- *J. L. Skolds

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on November 6, 1981 with those persons indicated in paragraph 1 above.

3. Licensee Action on Previous Enforcement Matters

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Procedure Review

a. General

Guidance for the administration of the startup test program is contained in Administrative Procedure AP-1700, "Power Ascension Test Program", Revision 0, approved February 5, 1981. The procedure

contains definitions and criteria, such as configuration adjustment and stable plant conditions, that will be referred to in the various test procedures used in the power ascension programs. AP-1700 also contains a description of the test organization and the responsibilities and qualifications of its members. The level of test review required before increasing to the next power plateau is defined and approval authority specified therein. Attachment I is the sequence of the 223 steps of procedure performances and configuration adjustments comprising the power ascension test program. Other attachments contain the lists of tests that must be completed prerequisite to advancing to the next level of testing for each of ten defined levels. Signatures of completion, review and approval by the startup supervisor, chairman of the PSRC and plant manager are required on each sheet.

One potential weakness of AP-1700 identified in the review was that Section 5.2 contains precautions and limitations that are essentially instructions to the operators. It is not clear from this procedure or other procedures how those instructions are transmitted to the operators. This concern for briefing the operators on the contents of AP-1700 will be carried as an inspector followup item (50-395/81-30-01).

b. Initial Fuel Loading (72500)

The following procedures were reviewed:

- (1) GOP-10, "Preparation for Refueling,"
- (2) FHP-601, "Refueling Organization,"
- (3) FHP-611.7, "Fuel Handling Machine," and
- (4) CST-3, "Initial Fuel Loading," a draft procedure.

Collectively these procedures refer to and initiate performance of a number of surveillance test procedures (STPs), many of which are not in final, approved, form. The exact status of these STPs was not determined, but a concern was voiced at the exit interview that these procedures would not be available for selective NRC review in time to support the February 1982 fuel-load date.

These procedures do not fully describe the refueling crew necessary to staff the control room (in accordance with technical specifications), the refueling deck and the fuel building. Further, the licensee has not defined the role of contractor refueling crews, and has not compared the proposed fuel handling staff with the requirements specified in IE Circular 80-21, "Regulation of Refueling Crews". The licensee was informed that certain exceptions to Circular 80-21 had been granted by Region II when formally requested by other licensees. The issue of refueling crew staffing and conformance to 80-21 will remain open until the draft procedure is completed, and will be tracked as open item 50-395/81-30-02.

The following additional comments apply to draft Procedure CST-3:

- . Posting requirements of 10 CFR 20 are not addressed.
- . Technical Specifications 3.9.6 and 3.9.8 are not addressed in Section 3.
- . Step 3.18 refers to Technical Specification 3.9.7.1, but 3.9.7.2 applies.
- . Step 3.22 refers to Technical Sepcification 3.9.9, but 3.9.8 applies.
- . The note following step 5.3.13 should specify appropriate, temporary fuel storage spaces.

Those comments were given to the licensee and will be tracked collectively as open item 50-395/81-30-03.

Neither CST-3 nor other procedures discussed later in this report using pulse counting nuclear instruments specify tests to assure that the signals observed result primarily from neutron interactions with minimal systematic error. The use of the chi-square test to remedy this deficiency was proposed to the licensee. As discussed a test would consist of ten observations of at least 1000 counts each for each detector in use. The frequency of testing would be: after installation of the primary neutron sources, after loading of the first eight fuel assemblies, after relocation of a detector and once every twenty-four hours when in use. The range of acceptable chi-square probabilities would be 5% to 80%. Application of this test will be tracked as open item 50-395/80-30-04.

Procedure FHP-611.7 does not address the use of the Z tape to confirm that fuel assemblies are properly seated in the intended location before releasing the gripper. A licensee representative stated that the FHP procedures, although approved, would be subject to extensive revision based upon proposed procedures forthcoming from their fuel-handling contractor. Accordingly, reference to the Z tape in fuel handling will be tracked as open item 50-395/81-30-05.

c. Initial Criticality (72570)

Procedure ZPT-1, "Initial Criticality" was reviewed. The procedure describes technically and procedurally adequate methods of achieving initial criticality, confirming source-range to intermediate-range nuclear instrument overlap, determining the power range for low power testing by observing the onset of sensible heating, and dynamically calibrating the reactivity computer.

The comments on pulse counting instruments made in paragraph 5.6 apply to this procedure also.

d. Low Power Test Procedures (72572)

The following approved procedures were reviewed:

- (1) ZPT-2.1, "Boron Endpoint Measurement, All Rods Out",
- (2) ZPT-2.2, "Boron Endpoint Measurement, Control Bank D Fully Inserted",
- (3) ZPT-2.3, "Boron Endpoint Measurement, Control Banks D and C Fully Inserted",
- (4) ZPT-2.4, "Boron Endpoint Measurement, Control Banks D, C and B Fully Inserted",
- (5) ZPT-2.5, "Boron Endpoint Measurement, Control Banks, D, C, B and A Fully Inserted",
- (6) ZPT-3.1, "Isothermal Temperature Coefficient Measurement, All Rods",
- (7) ZPT-3.2, "Isothermal Temperature Coefficient Measurement, Control Bank D Fully Inserted",
- (8) ZPT-3.3, "Control Bank Reactivity Worth Measurement by RCS Boron Dilution, Control Bank D",
- (9) ZPT-5.2, (Title as above for control bank C),
- (10) ZPT-5.3 (Title as above for control bank B),
- (11) ZPT-5.4 (Title as above for control bank A),
- (12) ZPT-7, "Control Bank Worth in Overlap", and
- (13) ZPT-8, "Pseudo Rod Ejection at Hot, Zero Power."

The boron endpoint measurement test was acceptable, however no procedures use the results of all of the tests to determine the boron differential worth (pcm/ppm). This lack of a test procedure will be tracked as open item 50-395/81-30-06.

The temperature coefficient tests do not specify the temperature range and reactivity scale (pcm/inch) to be used on the x-y recorder. The quality of the test results is a function of appropriate range and scaling. The impact of scaling on test adequacy will be tracked as inspector followup item 50-395/81-30-07.

No procedure is yet approved for determining rod insertion limits in response to the anticipated positive moderator coefficient in the all-rods-out configuration. STP-210.002 is planned to accomplish that analysis, and the timely evolution of that procedure will be tracked as open item 50-395/81-30-08.

Procedures addressed to control rod calibration do not contain cautionary statements that the magnitude of reactivity insertion must be within the dynamically-calibrated range of the reactivity computer established in ZPT-1. Limiting use of the reactivity computer to the dynamically calibrated range will be tracked as inspector followup item 50-395/81-30-09.