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

JUL 17 1981

Report Nos. 50-280/81-19 and 50-281/81-20

Licensee: Virginia Electric and Power Company
P. O. Box 26666
Richmond, Virginia 23261

Facility Name: Surry 1 and 2

Docket Nos. 50-280 and 50-281

License Nos. DPR-32 and DPR-37

Inspection at Surry site near Williamsburg, VA

Inspector: E H Brooks — 7-16-81
E. H. Brooks — Date Signed

Approved by: H. L. Whitener / for — 7-16-81
P. T. Burnett, Acting Section Chief — Date Signed
Engineering Inspection Branch
Division of Engineering and Technical Inspection

SUMMARY

Inspection on June 22-27, 1981

Areas Inspected

This routine, unannounced inspection involved 44 inspector-hours onsite in the areas of containment integrated leakage rate testing.

Results

Within the scope of this inspection, no violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*J. Wilson, Plant Manager
*D. Christian, Superintendent Technical Services
R. Blount, Test Director
M. Kansler, Associate Engineer

Other Organizations

Stone and Webster

R. Parry
H. Kunkel

NRC Resident Inspector

D. Burke
M. Davis

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on June 27, 1981 with those persons indicated in paragraph 1 above.

3. Licensee Action on Previous Inspection Findings

Unresolved item (281/80-39-01): The ILRT report for Unit 2 does not contain as-found and as-left leakage results for type B and C tests performed since the last type A test. Also certain minor inaccuracies on page 3-9 of the report require correction. The ILRT report did not contain enough information relative to leakage rates and leak locations to determine if the two failed attempts to perform a Type A test were a result of leakage in new systems or represent a failed ILRT.

The licensee stated that this information would be assembled, evaluated and incorporated into the ILRT report and submitted to the Commission by August 15, 1981.

Unresolved item (281/80-39-02): The local leak rate test program is incomplete. Procedures PT-16.3A and PT-16.3B specify certain flanges and valves to be tested only prior to Type A (ILRT) tests (i.e. at greater than 3 year internals). Appendix J requires that local leakage rate testing be performed at each refueling outage (not to exceed 24 months).

The licensee stated that the local leak rate test program will be re-evaluated and the results of the re-evaluation will be submitted to the Commission by August 15, 1981.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Containment Integrated Leakage Rate Testing (CILRT)

The following procedures relating to leakage rate testing were provided by the licensee and were reviewed by the inspector:

1-PT-16.1	Containment Leakage Monitoring System
1-PT-16.2	Containment Penetration Local Leakage
1-PT-16.3A	Fuel Transfer Flange Local Leakage
1-PT-16.3B	Containment Isolation Valve Leakage (Prior to Type A Test)
1-PT-16.4	Containment Isolation Valve Leakage (At Periodic Intervals)
1-PT-16.3	Reactor Containment Building Integrated Leak Rate Test (Type A at 59.7 PSIA)

The licensee was advised that procedure 1-PT-16.3B and 1-PT-16.4 are still the subject of unresolved item 281/80-39-02 (refer to section 5., above). The licensee confirmed that all isolation valves listed in these procedures have been locally leak tested prior to initiation of the Type A test on Unit 1.

During the period from June 22-27, the inspector conducted the following reviews and inspections:

a. Inspected installation of compressors and preparations for containment pressurization.

b. Confirmed removal of all pressure sources from the containment.

c. Confirmed that the reactor coolant system was adequately vented to the containment prior to start of the test.

d. Reviewed containment integrated leakage rate test (type A) instrument calibration records and verified that all instruments have been calibrated within the last 6 months to standards traceable to the National Bureau of Standards (NBS).

e. Reviewed plant systems lineups in preparation for the CILRT to confirm compliance with Appendix J in regard to venting and draining requirements.

f. Reviewed valve lineup checklists for proper valve positioning and sign-off.

Containment pressurization was initiated at 1837 hours on June 25 and a pressure of 61.483 psia was achieved at 0543 hours on June 26 at which time the compressors were stopped and isolated from the containment. While attempting to achieve containment stabilization, a survey crew discovered two recirculation spray isolation valves located outside containment in the open position with power to the valve operator in the "on" position. The valve lineup checklist indicated that the 2 valves had been closed with power "off" as required for the CILRT. As a result, the recirculation spray system outside containment was subjected to containment test pressure, and a small leak was found to exist in the recirculation spray pump flange. The situation was identified to the inspector, and the cause of improper valve positioning resulted from failure of procedure control, i.e., the valves had been closed in preparation for the CILRT, but reopened by other personnel while performing a different procedure.

The licensee advised the inspector that the appropriate procedures would be revised to emphasize that no valve manipulations are permitted without approval during the CILRT. It was agreed to continue the CILRT with the recirculation spray system pressurized since this arrangement is considered to be more conservative from a leak test standpoint.

After achieving containment stabilization at 60.7 psia the CILRT was initiated at 1540 hours on 6-26-81 and continued for a period of 24 hours.

During the test several aberrations were observed in the computer printout of the test results. The source of the aberrations was determined to be caused by fluctuations in several resistance temperature detectors (RTD's) due to electrical arcing across a cold solder joint at the RTD power supply bus. After repair of the soldered joint, it was concluded that the containment atmosphere had not become unstabilized and the CILRT was continued.

Based on the absolute test method, mass-point analysis, the leakage rates and acceptance criteria are as follows:

Calculated Leakage Rate	0.032%/day
Upper 95% Confidence Level	0.035%/day
Maximum Allowable Leakage Rate	0.1%/day
75% of Maximum Allowable Leakage Rate	0.075%/day

The acceptance criteria for the CILRT requires that the upper bound of the leakage rate calculated at 95% confidence level plus any required local leakage rate additions shall be less than 75% of maximum allowable leakage rate.

Local leakage measured by type "B" and type "C" testing prior to the type A test was 4.6 SCFH or 0.0015%/day. Accordingly, 0.035%/day +0.0015%/day does not exceed 0.075% day and is therefore acceptable.

The results of the CILRT including the adjustments for local leakage rate testing will be submitted in a test report to the Commission.