



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

Report Nos.: 50-280/83-17 and 50-281/83-17

Licensee: Virginia Electric and Power Company
 Richmond, VA 23261

Docket Nos.: 50-280 and 50-281

License Nos.: DPR-32 and DPR-37

Facility Names: Surry 1 and 2

Inspection at Surry site near Williamsburg, Virginia

Inspectors:	<u>C. Julian for</u>	<u>7/21/83</u>
	D. J. Burke	Date Signed
	<u>C. Julian for</u>	<u>7/21/83</u>
	M. J. Davis	Date Signed
Approved by:	<u>C. Julian</u>	<u>7/21/83</u>
	C. Julian, Section Chief, Division of Project and Resident Programs	Date Signed

SUMMARY

Inspection on June 6 - July 1, 1983

Areas Inspected

This inspection involved 180 resident inspector-hours on site in the areas of plant operations and operating records, plant maintenance and surveillance, plant security, followup of events, and licensee event reports.

Results

In the areas inspected, no violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *J. L. Wilson, Station Manager
- *R. F. Saunders, Assistant Station Manager
- *D. A. Christian, Operations Superintendent
- M. R. Kansler, Superintendent of Technical Services
- *H. W. Kibler, Maintenance Superintendent
- *D. Rickeard, Supervisor, Safety Engineering Staff
- S. Sarver, Health Physics Supervisor
- R. Johnson, Operations Supervisor
- R. Driscoll, Director QA, Nuclear Operations

Other licensee employees contacted included control room operators, STA's, shift supervisors, chemistry, health physics, plant maintenance, security, engineering, administrative, records and contractor personnel.

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on a biweekly basis with those persons indicated in paragraph 1 above.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Operations

Unit 1 and Unit 2 Operations were inspected and reviewed during the inspection period. During this time, the inspectors routinely toured the control room and other plant areas to verify that plant operations, testing and maintenance were being conducted in accordance with the facility Technical Specifications (TS) and procedures. Within the areas inspected, no violations were identified.

Specific areas of inspection and review included the following:

- a. Review was made of annunciated alarms in the control room and inspection of safety-related valve and pump alignments on the consoles and in the plant.

- b. At 4:08 p.m. on June 20, 1983, both reactors tripped due to a momentary fault on the station electrical power system during a severe thunderstorm. A lightning strike in the station switchyard apparently caused the loss of both auto-tie transformers which feed system power to the reserve station service (startup) transformers. The auto-tie transformers "tie" the units and the 230KV and 500KV systems together, and have a 34.5KV tap which supplies a primary source of power to the RSS transformers. Certain components on 230KV bus #4 were subsequently found damaged (e.g.-breaker GT 02) and the #1 auto-tie transformer suffered internal damage. The back-up #4 transformer (230/34.5KV) auto-closed within a few cycles to feed the RSS transformers from off-site power. Although several reactor protection system channels tripped during the power fault, and resulted in the two unit trip, safety injection or ESF actuation did not occur, and none of the emergency diesel generators were required or called upon to start. The Unit 1 and 2 trips were quite normal; the RCS pressures and temperatures and pressurizer levels responded normally as expected. Auto load shedding initiated as required to reduce the electrical load on RSS systems and ensure power to important equipment such as the reactor coolant pumps. All DB-50 reactor trip breakers opened as required in less than 100 msec. The inspector also verified that the #4 transformer in the switchyard was not overloaded while supplying electrical power to both units. The 100 MVA rated GE transformer was loaded to a maximum of some 78 MVA. Following the trip and system evaluations, Unit 2 was restarted at 8 p.m. to ensure the recovery near end of core life. At 9:40 p.m., with Unit 2 at 15% power, the delta flux was out of the operating band, and penalty minutes were accumulated. The high flux trip setpoints were also reduced to less than 55% in accordance with TS 3.12.B.4.b.
- c. Unit 2 experienced a reactor trip from 85% power on June 23, 1983, due to low level on 'A' Steam generator coincident with a feed flow-steam flow mismatch. The 'A' feed regulating valve was being controlled in manual in order to evaluate an error signal causing valve drift in the automatic mode. When the valve was moved in the shut direction in the manual mode, it went completely shut and resulted in the reactor trip. The valve controller was repaired and the unit returned to operation.
- d. Unit 1 conducted a normal shutdown on June 24 for balancing of the main turbine and repacking of MOV-1587, an RCS loop stop bypass valve. The unit restarted on June 28 and reached full power operation on June 29, 1983.
- e. Unit 2 began ramping down in preparation for a two month refueling and ISI outage on June 29. During the rampdown at 0059 on June 30, Unit 2 experienced a turbine trip/reactor trip from 24% power due to high level on the 'B' steam generator caused by excessive leakage past the 'B' feed regulating valve. The feedwater valve will be inspected during the unit outage.

- f. During the Unit 1 and 2 startup and shutdowns, the inspectors observed the intermediate range NI detector displays in the control rooms. The 25% power (current equivalent) setpoint had been reduced from 3.5×10^{-4} amp to 2.0×10^{-4} amp in each of the two IR channels per unit. The corresponding IR trip settings had been earlier found to be nonconservative at the North Anna station, and prompt conservative action was taken at Surry. The reduced setpoints were verified to be below 25% actual and power range NI powers.

6. Surveillance Maintenance Inspections

During the reporting period the inspectors reviewed various surveillance and maintenance activities to assure compliance with the appropriate procedures and Technical Specifications. Inspection areas included the following:

- a. Nuclear instrumentation calibration - IR/SR performance during post trip power decay was observed for both units. IR/SR calibration checks were observed to ensure limiting conditions for operation were met during the calibration, approved procedures were in use, and calibration was within required accuracy.
- b. Emergency diesel generator surveillance testing was observed by the inspector.
- c. Reactor coolant system leak rates were reviewed to ensure that detected or suspected leakage from the system was recorded, investigated and evaluated and that appropriate actions were taken.

No violations were identified.

7. LER Review

The inspectors reviewed the LERs listed below to ascertain that NRC reporting requirements were being met and to determine the appropriateness of corrective action taken and planned. Certain LERs were reviewed in greater detail to verify corrective action and determine compliance with TS and other regulatory requirements. The review included examination of logbooks, internal correspondence and records review of SNSOC meeting minutes, and discussions with various staff members. Within the areas inspected, no violations were identified.

(Closed) LER 280/83-2 concerned channel 2 of 'C' steam generator level indication (LI-1-495) reading 5% higher than channels 1 or 3. The channel was declared inoperable and the bistables were placed in trip mode. A leaking transmitter reference leg condensate pot root valve was subsequently replaced.

(Closed) LER 280/83-8 concerned an inoperable PORV, PCV-1455C, which would not fully stroke due to stem binding. The block valve was closed and de-energized. The valve was subsequently repaired during the Unit 1 outage.

(Closed) LER 280/83-9 concerned two inoperable PORV block valves that would not cycle fully. After hand closing the valves were de-energized. The valves were repaired during the Unit 1 outage.

(Closed) LER 280/83-22 concerned the flow orifice plate used during PT 33 (Control Room Leakage Test) not reducing the output of the emergency fan (1-VS-F-42) to 300 CFM, as intended, to simulate emergency air bottle flow. It is believed the original orifice design was based on analytical methods and no functional tests were performed to verify the design. The orifice plate was modified, based on test results, to provide the correct flow.

(Closed) LER 280/83-25 concerned improper IRPI calibration on control bank 'B' position indicators that caused the indicators to display 30 steps withdrawn when the rods were fully inserted. When the condition was found just after reactor shutdown, the BIT was injected to ensure adequate shutdown margin. Rod positions were verified by taking readings from search coils. It was determined that the insertion of a fine control potentiometer between the power supply and the signal conditioning module introduced a calibration error. Control Bank 'B' was subsequently recalibrated.

(Closed) LER 281/83-9 concerned a heat tracing breaker tripping due to a section of the circuit being incorrectly wired. The redundant circuit remained operable. The wiring problem was subsequently corrected.

(Closed) LERs 281/83-12, 281/83-27, and 281/83-28 concern heat tracing failures due to excessive heat which were replaced within the required time span specified by Technical Specifications. New heat tracing is being installed during the current refueling outage.

(Closed) LER 281/83-19 concerned MOV-LCV-2115D (RWST to charging pump suction), which failed to open during testing due to a loose "plug in" terminal strip in the motor control center. The terminal strip was properly seated and the valve tested.

(Closed) LER 281/83-30 concerned low charging pump service water pump discharge pressure due to insufficient NPSH. Flow through the air conditioner chillers was throttled and the pump was vented and returned to service. A design change is currently in progress to relocate the charging pump service water pumps. Completion is scheduled for the fall of 1983.

8. Plant Physical Protection

The inspectors verified the following by observations:

- a. Gates and doors in protected and vital area barriers were closed and locked when not attended.
- b. Isolation zones described in the physical security plans were not compromised or obstructed.

- c. Personnel were properly identified, searched, authorized, badged and escorted as necessary for plant access control.

No violations were identified.