UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

Report Nos.: 50-280/86-33 and 50-281/86-33

Licensee: Virginia Electric and Power Company
Richmond, Virginia 23261

Docket Nos.: 50-280 and 50-281 License Nos.: DPR-32 and DPR-37

Facility Name: Surry 1 and 2

Inspection Conducted: October 5 through November 1, 1986

Inspector: R P Croteau for 11/18/86
W. E. Holland, Senior Resident Inspector Date Signed

Accompanying Inspectors: P. K. VanDoorn, L. E. Nicholson, and B. Bonser

Approved by: 11/18/86
F. S. Cantrell, 3B Section Chief Date Signed
Division of Reactor Projects

SUMMARY

Scope: This routine inspection was conducted in the areas of plant operations, plant maintenance, plant surveillance, outages, and inspection of the dry storage spent nuclear fuel facility.

Results: No violations or deviations were identified in this inspection report.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

R. F. Saunders, Station Manager
D. L. Benson, Assistant Station Manager
*H. L. Miller, Assistant Station Manager
D. A. Christian, Superintendent of Operations
*E. S. Grecheck, Superintendent of Technical Services
*J. W. Patrick, Superintendent of Maintenance
*S. Sarver, Superintendent of Health Physics
R. Johnson, Operations Supervisor
N. Clark, Site Quality Assurance Manager
*W. D. Craft, Licensing Coordinator
*J. B. Logan, Supervisor, Safety and Licensing

Other licensee employees contacted included control room operators, shift technical advisors, shift supervisors and other plant personnel.

*Attended Exit Interview.

2. Exit Interview

The inspection scope and findings were summarized on November 3, 1986, with those individuals identified by an asterisk in paragraph 1. No new open items were identified by the inspector during this exit. The licensee acknowledged the inspection findings with no dissenting comments. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

3. Plant Operations

Operational Safety Verification (71707)

The inspector conducted daily inspections in the following areas: control room staffing, access, and operator behavior; operator adherence to approved procedures, technical specifications, and limiting conditions for operations; examination of panels containing instrumentation and other reactor protection system elements to determine that required channels are operable; and review of control room operator logs, operating orders, plant deviation reports, tagout logs, jumper logs, and tags on components to verify compliance with approved procedures.

The inspector conducted weekly inspections in the following areas:

Verification of operability of selected ESF systems by valve alignment, breaker positions, condition of equipment or component(s), and operability of instrumentation and support systems essential to system actuation or performance.

Plant tours which included observation of general plant/equipment conditions, fire protection and preventative measures, control of activities in progress, radiation protection controls, physical security controls, plant housekeeping conditions/cleanliness, and missile hazards.

The inspector conducted biweekly inspections in the following areas: verification review and walkdown of safety-related tagout(s) in effect; review of sampling program (e.g., primary and secondary coolant samples, boric acid tank samples, plant liquid and gaseous samples); observation of control room shift turnover; review of implementation of the plant problem identification system; verification of selected portions of containment isolation lineup(s); and verification that notices to workers are posted as required by 10 CFR 19.

Certain tours were conducted on backshifts. Inspections included areas in the Units 1 and 2 cable vaults, vital battery rooms, steam safeguards areas, emergency switchgear rooms, diesel generator rooms, control room, Unit 2 containment, auxiliary building, cable penetration areas, low level intake structure, and safeguards valve pit areas. 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, if required. On a regular basis, radiation work permits (RWPs) were reviewed and specific work activities were monitored to assure they were being conducted per the RWPs. Selected radiation protection instruments were periodically checked, and equipment operability and calibration frequency were verified.

In the course of monthly activities, the inspectors included a review of the licensee's physical security program. The performance of various shifts of the security force was observed in the conduct of daily activities to include: protected and vital areas access controls; searching of personnel, packages and vehicles; badge issuance and retrieval; escorting of visitors; and patrols and compensatory posts.

Unit 1 began the reporting period operating at power. The unit operated at power throughout the reporting period with no reactor trips or shutdowns.

Unit 2 began the reporting period in the process of cooling down for a scheduled refueling outage. During this period, the unit was defueled, inspections were conducted of the vessel and nozzles, and the new core load was completed. At the end of the reporting period, the unit remained in a refueling shutdown condition with the reactor new fuel onload in progress. Paragraph 6 of this report addresses additional areas inspected during this refueling outage.

Engineered Safety Feature System Walkdown (71710)

The inspector performed a walkdown of the accessible portions of the auxiliary feedwater portion of the feedwater system to verify its operability. This verification included the following: confirmation that the licensee's system lineup procedure matches plant drawings and actual plant configuration; hangers and supports are operable; housekeeping is adequate; valves and/or breakers in the system are installed correctly and appear to be operable; fire protection/prevention is adequate; major system components are properly labeled and appear to be operable; instrumentation is properly installed, calibrated and functioning; and valves and/or breakers are in correct position as required by plant procedure and unit status.

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

4. Maintenance Inspections (62703)

During the reporting period, the inspectors reviewed maintenance activities to assure compliance with the appropriate procedures. Inspections areas included the following:

Repair of Unit 2 Feedwater Regulating Valve (2-FW-FCV-2488)

The inspector witnessed repair activities associated with corrective maintenance on the main feedwater regulating valve for B steam generator on Unit 2. The valve was being repaired due to a body to bonnet leak; however, when the valve was disassembled it was determined that no seat repairs would be required. The maintenance activity was being accomplished by one of the licensee's quality maintenance teams. The inspector discussed the job with the team foreman and then observed the reassembly activity being accomplished in the #2 machinery space. At the end of the inspection period, the valve had been reassembled and was awaiting plant conditions for stroke testing prior to the work package being completed. The inspector intends to review the completed work package during the next inspection period.

Inspection of Recirculation Spray Heat Exchangers

During this period, the licensee conducted inspections of the internals of the four recirculation spray heat exchangers located in containment for Unit 2. These inspections were being accomplished due to tube degradation of the B recirc spray heat exchanger which required the Unit to shut down and make repairs in July 1986 (See LER 86-011-00 for Unit 2). The licensee conducted inspections of all four of the heat exchangers on the service water side of the system and determined that tube degradation in the form of pitting was occurring. The licensee decided to conduct a hydrostatic test on each heat exchanger to 150% of the design pressure in order to justify tube integrity and continued operation for another cycle. The inspector requested that an engineering report be provided with the analysis and justification for continued operation. This issue was under discussion with the licensee at the end of the inspection period and will be addressed in the next months inspection report.

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

5. Surveillance Inspections (61726)

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

- On October 29, 1986, the inspector witnessed performance of periodic test 2-PT-53.1B (Tube Leak Repair Hydro of 2-RS-E-1B). This test pressurized the shell side of the "B" recirculating spray heat exchanger following tube plugging. The inspector reviewed the procedure and verified that the test was accomplished in accordance with the procedure.

- On October 30, 1986, the inspector reviewed the completed periodic test 1-PT-2.1B (Overpower-Overtemperature-Delta T Protection System (T-1-422)). The results of this test indicated a failed Loop B hot leg RTD which required the Loop B overpower-overtemperature delta T protection channel be placed in trip. The inspector also reviewed the completed results of 1-PT-22.2 (Emergency Diesel Generator Fuel Supply) and 1-PT-19.1 (RWST Chemical Addition Tank and Containment Spray System MOVs).

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

6. Outages

Design, Design Changes and Modifications (37700)

The inspector selected four design changes that were being accomplished during the present Unit 2 refueling outage for review. These changes were:

A. Inadequate Core Cooling System Upgrade, DC-85-11-2. This change completes the installation of systems that satisfies the requirements of Regulatory Guide 1.97, Revision 3, for the monitoring of core cooling parameters. The work includes the installation of a new core exit thermocouple system and a new inadequate core cooling system. Completion of this work will satisfy the requirements of NUREG-0737, paragraph II.F.2.

B. Charging Pump Service Water Piping Replacement, DC-84-67-3. This change provides for replacement of plastic pipe installed in the charging pumps service water system which supplies cooling water to charging pump intermediate seal coolers and lubricating oil coolers. The piping replacement is required to satisfy the requirements of Appendix R, Section III.G.2(e), of 10 CFR 50.

C. RCP Thermal Barrier CCW System Modification/Surry/Unit 2, DC-85-22-2. This change installs check valves, trip valves, and relief valves in the portion of the component cooling water (CCW) system that provides cooling to the reactor coolant pump thermal barrier. This change was required to prevent overpressurization of this portion of the CCW system in the event of a thermal barrier rupture.

D. Vital Bus Expansion/Surry/Unit 2, DC-85-34-2. This change installs new station vital batteries for the 125 volt DC power supply for both safety trains of power. The 2B battery and its associated invertor and charger is being replaced during this outage. The 2A battery, inverter, and charger is scheduled to be replaced during the 1988 outage.

The inspector reviewed the licensee's engineering review and safety analysis for each change to assure that the changes had been reviewed and approved in accordance with 10 CFR 50.59 and that the reviews were adequate. The inspection period ended with the modifications still being installed. This inspection will continue into the next inspection period and will be addressed in next month's inspection report.

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

7. Inspection of Dry Storage Spent Nuclear Fuel Facility (TI 0110/2)

VEPCO received a license from the NRC issued on July 2, 1986, to package and store spent fuel assemblies at the Surry Independent Spent Fuel Storage Location (ISFSI) located on the Surry Power Station site. The license contained specific preoperational license conditions which had to be satisfied prior to the loading of spent nuclear fuel. During the previous inspection period, the inspector verified that all of the conditions had been accomplished except the following:

- Completion of training exercise (Dry Run) including certification of all personnel who conducted the dry run.

- Review and modification of administrative procedures.

- Review of written abnormal/emergency procedures.

During this inspection period, the inspector verified that all preoperational license conditions had been satisfied as follows:

- The inspector reviewed the training documentation and verified that all personnel who would be involved in the licensed activities for the ISFSI had been trained during the dry run. The inspector was provided with a copy of the training record listing all persons who had been trained.

- The inspector reviewed the applicable station Administrative Procedures and verified that these procedures had been changed to include ISFSI requirements.

- The inspector was provided a copy of all abnormal procedures which had been prepared to support ISFSI related events. These procedures are:

  - Abnormal Procedure (AP-52), "Response to a Seal Monitoring System Alarm"

- Abnormal Procedure (AP-53), "Cask Handling Incidents"

- Abnormal Procedure (AP-54), "Storage of Spent Fuel in a Castor V/21 Dry Storage Cask - Opening a Loaded Cask"

The inspector reviewed the abnormal procedures and determined that the procedures addressed postulated abnormal events.

The inspector also conducted a review of the documentation and certification records for two of the three casks that the licensee has on site which will be used for the initial loading of spent fuel. The three casks are identified as Castor V-21, Nos. 500-11-003, 500-11-004, and 500-11-005. The inspection included verification that the manufacturers' identification markings on the cask bodies were the same as indicated on certification papers and shipping documents; a review of the licensee's audit reports of the vendors QA program to insure compliance with requirements; a review of documentation which certified that cask components met material, fabrication, and performance requirements; and a review of certification documents for ultrasonic testing of the cask body.

Operational Inspections - On October 24, 1986, the inspector witnessed the loading of the first cask with spent fuel. The cast (No. 500-11-005) was loaded with 21 fuel assemblies as specified by the approved cask loading procedure. The inspector verified by direct observation that the fuel assemblies selected for storage were the fuel assemblies identified on the cask loading map and that these assemblies were loaded into their preselected locations in the cast. The inspector also inspected the cask primary cover lid prior to placement and no discrepancies were noted. However, after placement of the lid on the cask, the licensee was unable to evacuate the cask cavity of water due to some unknown condition preventing the lid from properly sealing on the cask. The licensee lowered the cask back into the spent fuel pool and decided to conduct a through engineering analysis of the problem prior to continuing with the evolution. The inspection period ended prior to the licensee resolving the deficiency. The inspector is following the licensee actions and will continue the inspection as soon as the licensee determines a course of action and provides approved procedure to correct the condition.

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