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

Report Nos.: 50-280/84-10 and 50-281/84-10

Licensee: Virginia Electric and Power Company
Richmond, VA 23261

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

Facility Name: Surry 1 and 2

Inspection Conducted: March 1-31, 1984

Inspectors: Kenneth M Jenison 1 Feb 85
D. J. Burke Date Signed

Kenneth M Jenison 1 Feb 85
M. J. Davis Date Signed

Approved by: S A Elrod Feb 1, 1985
S. Elrod, Section Chief Date Signed
Division of Reactor Projects

SUMMARY

Scope: This inspection involved 260 inspector-hours on site in the areas of plant operations and operating records, plant maintenance and surveillance, plant security, IE Bulletin followup, NUREG-0737 item review, followup of events and licensee event reports.

Results: One violation was identified in plant operations (TS limits on RCS cooldown rate were exceeded - paragraph 5.c), one violation was identified in NUREG-0737 item review (RCS Vents Isolated - paragraph 9.b).

REPORT DETAILS

1. Licensee Employees Contacted

   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, Superintendent of Maintenance
   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, shift technical advisors (STAs), shift supervisors, chemistry, health physics, plant maintenance, security, engineering, administrative, records, and contractor personnel and supervisors.

2. Exit Interview

   The inspection scope and findings were summarized on a biweekly basis with certain individuals in paragraph 1 above. Subsequently, the violation regarding isolation of Reactor Coolant System Vents was discussed with licensee management by NRC Region II management.

3. Licensee Action on Previous Enforcement Matters

   This subject was not addressed in the inspection.

4. Unresolved Items

   Unresolved items were not identified during this inspection.

5. Operations

   Units 1 and 2 operations were inspected and reviewed during the inspection period. 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, one violation was identified when the Unit 2 RCS cooldown rate limits were exceeded.

   Specific areas of inspection and review included the following:

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

b. Unit 1 began the reporting period in a cold shutdown condition in the middle of two week snubber inspection and maintenance outage. The unit went on line on March 11 and operated at power for the remainder of the reporting period.

c. Unit 2 experienced a reactor trip from full power on March 16. The trip was caused by the loss of the 'B' reactor coolant pump due to a ground fault in the power supply line to the pump caused by moisture accumulation in the containment electrical penetration assembly. The penetration was replaced. Similar penetrations were inspected and dried if required. Source range channel N-32 failed to reenergize automatically and had to be manually reset on low immediate range indication. The 'B' main feedwater regulating valve did not go fully closed after the trip. The boron injection tank was manually injected and plant cooldown was initiated in preparation for a two week snubber inspection and maintenance outage. During the cooldown, the inspector observed that the wide range RCS temperature indication strip charts displayed a larger than normal RCS temperature decrease per hour below 440°F due to the cooldown process and injection of cool RWST water to flush the boron injection tank into the RCS. Further inspection verified that the RCS cooldown rate exceeded the TS 3.1.B.1 limit of 50°F/hr. below 440°F by some 5°F, and is a violation of the TS 3.1.B.1 cooldown limits. (281/84-10-01).

6. Inspections, Surveillances, and Maintenance Review

During the reporting period, the inspectors reviewed various surveillance and maintenance activities to assure compliance with the appropriate procedures and TS, and verified the operability of major plant systems. Inspection areas included the following:

a. Walkdown inspections of the auxiliary building, subsurface drain systems, cable penetration areas, Unit 2 containment building, switchgear and cable rooms, outside areas, and the turbine building were conducted. No violations were identified in the areas inspected.

b. The inspectors reviewed the control room logs and operations daily and reviewed the reactor coolant system leak rates on a daily basis. Several LCOs in Section 3 of the TS were also verified on a periodic basis to insure compliance with the requirements. The inspector also verified that at least two Senior Reactor Operators (SROs) were on duty at all times during reactor operations, and at least one of the SROs was in the reactor control room at all times.

c. On March 15, 1984, the inspectors requested that certain Unit 1 failed snubbers be disassembled and examined to determine if apparent failure mechanisms could be observed or identified. Three 1½" hydraulic snubbers were disassembled on March 16, 1-RH-HSS-100, 1-RH-HSS-13, and 1-RC-HSS-106; while 1-RH-HSS-13 had ethylene propylene (EP) piston seals, the remaining two snubbers had polyurethane seals.

The EP seal replacement was to have been completed during (SGRP) outages. Further inspection of the licensee's snubber programs is discussed in Inspection Report Nos. 50-280/84-13 and 50-281/84-13 for both units.

d. During the Unit 2 outage, while the unit was in a cold shutdown condition, a socket weld leak was discovered on the 'A' steam generator channel head drain piping at valve 2-RC-159. The 'A' RC loop was isolated and drained. 2-RC-159 was cut out for examination and the drain line capped and welded. This particular weld had experienced leakage and repairs in the past (see LERs 281/84-24, 281/84-75, and 281/83-38).

7. LER Review

The inspectors reviewed the Licensee Event Reports (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 280/83-15 concerned a loss of containment integrity during refueling when a valve in a nitrogen purge line to 'C' steam generator was removed for maintenance with steam generator hand hole covers removed in containment. Fuel movement was stopped and a temporary seal installed. Refueling operations were terminated while a new valve was welded in place. A change was made to the controlling procedures for refueling concerning the identification of indirect paths to the containment atmosphere.

(Closed) LER 280/84-04 concerned a high dose equivalent Iodine-131 activity in the RCS following unit shutdown. The spike was caused by known, but not specifically located, fuel element defects in the reactor core. The activity level was monitored at least once every four hours until the level returned to less than 1.0 microcuries/cc. The peak activity level was 1.77 microcuries/cc.

8. IE Bulletin Review

(Closed) IEB 79-05C and 79-06C concerned the Three Mile Island nuclear incident. Station procedures were revised to direct tripping of all operating RCPs upon initiation of Safety Injection caused by low RCS pressure. Personnel staffing and training requirements of the bulletin have been satisfied. Revised emergency procedures are in effect. The licensee does not believe that automatic tripping of the RCPs is a required function based on the analyses that have been performed and the guidelines that have been developed for manual RCP tripping. This bulletin is closed for Surry Units 1 and 2.

(Closed) IEB 79-11 concerned faulty overcurrent trip devices in circuit breakers for Engineered Safety Systems. The licensee reviewed the use of Westinghouse DB-50 and DB-75 circuit breakers and determined that there were no overcurrent devices installed on those breakers in safety related applications. This bulletin is closed for Surry Units 1 and 2.

(Closed) IEB 79-21 concerned temperature effects on level measurements. Steam generator level setpoints were revised in accordance with this bulletin several years ago (see inspection report 50-280/80-01 and 50-281/80-03). This bulletin is considered closed for Surry Units 1 and 2.

(Open) IEB 80-05 concerning vacuum conditions resulting in damage to CVCS holdup tanks. The licensee was requested to provide a supplemental response which would address additional tanks. This bulletin remains open.

(Closed) IEB 80-06 concerned safety related equipment not remaining in its emergency mode upon reset of an ESF signal. Design changes have been completed on Iodine Filter Bank air operated dampers, Safeguards area exhaust fan filter SOVs, and main steam line trip valve SOVs. This bulletin is closed for Surry Units 1 and 2.

(Closed) IEB 80-12 concerned operability of decay heat removal systems. Current Surry TS require two non-isolated loops, consisting of any combination of RCS loops or RHR loops to be operable (with one in operation) when RCS temperature is less than 350°F. This bulletin is closed for Surry Units 1 and 2.

(Closed) IEB 80-15 concerned the possible loss of the Emergency Notification System (ENS) with a loss of offsite power. The ENS system at Surry is currently powered from a vital bus and will remain energized. The ENS is functionally tested daily. This bulletin is closed for Surry Units 1 and 2.

(Closed) IEB 81-02 concerned the failure of certain gate type valves to close against differential pressure. One valve, MOV 2869B, the hot leg recirculation isolation valve in Unit 2, was on the list of affected valves. The valve was modified to increase torque settings to ensure closure. This bulletin is closed for Surry Units 1 and 2.

(Closed) IEB 81-03 concerned flow blockage of service water cooling lines due to Asiatic clams and Mytilus mussels. Inspections revealed no shells or shell fragments identifiable as either species. Other types of marine growth have been observed. The SW recirculation spray heat exchangers are opened and inspected/cleaned during refueling outages. The system is isolated when not in use. This bulletin is closed for Surry Units 1 and 2.

(Closed) IEB 82-02 concerned degradation of threaded fasteners in the RCS pressure boundary. The results of threaded fastener inspections on Units 2 and 2 were submitted on November 1, 1983. Based on this response and Region II review, this bulletin is closed for Surry Units 1 and 2.

(Closed) IEB 83-03 concerned check valve failures in raw water cooling systems of Emergency Diesel Generators. The three Emergency Generators at Surry are not cooled by service water or any outside water supplies. All three run with a closed loop water system cooled by ambient air. This bulletin is closed for Surry Units 1 and 2.,

(Closed) IEB 83-05 concerned defective pumps manufactured by the Hayward Tyler Pump Company. Hayward Tyler has not supplied pumps to Surry Units 1 and 2. This bulletin is closed for Surry Units 1 and 2.

(Closed) IEB 83-08 concerned Electrical Circuit breakers with an undervoltage trip feature used in safety related systems other than the Reactor Trip System. There are no breakers with undervoltage trip attachments of the type described in the bulletin in safety related systems except for the reactor trip breakers. This bulletin is closed for Surry Units 1 and 2.

(Open) IEB 79-25, Failure of Westinghouse BFD Relays in Safety Related Systems was reviewed. Although the BFD relays of concern were tested and/or replaced as required, a final response from the licensee with results of the testing and replacement programs is required.

(Open) IEB 80-16, "Potential Misapplication of Rosemount, Inc. Models 1151 and 1152 Pressure Transmitters with A or D Output Codes." The licensee's response identified some 16 Model 1152 transmitters with the 'A' output code which could be exposed to input pressure that could result in anomalous output signals. However, the inspector requested the basis for not including the following 1152 'A' transmitters in the response: U-1 and 2 RWST level, U-1 and 2 Emergency Condensate Tank Levels, U-1 and 2 Wide Range Containment Pressure monitors, and others. The licensee is reviewing this matter.

9 Inspection of NUREG-0737 Requirements

a. Item I.C.1, Emergency Procedures - the licensee has implemented the approved and revised emergency procedures for the Surry site. The licensee has established Emergency Procedures, Abnormal Procedures, Emergency Contingency Actions, and Function Restoration Procedures in addition to the three volumes of Emergency Plans and Procedures. This item is closed.

b. Item II.B.1, Reactor Coolant System Vents - the RCS high point vents on the reactor pressure vessel and pressurizer have been installed and are operable. The Unit 1 and 2 RCS vents are periodically tested during outages (PT 18.6.F and G) and the use of the vents is addressed in the Emergency and Function Restoration Procedures. The RCS vents are currently operable; however, the licensee has only recently put the reactor head vents in service (Unit 1 during the February 24 - March 9, 1984 outage and Unit 2 during the March 6 - April 13, 1984 outage). Item II.B.1 is closed.

NUREG-0737 item II.B.1 was superseded by 10 CFR 50.44(c)(3)(iii). NRC specifically informed the licensee of this in a letter dated September 12, 1983 and further advised the licensee that an exemption was necessary if the specific design or schedular requirements could not be complied with. Though the systems were installed prior to September 12, 1983, the reactor vessel head vent manual isolation valves were shut-precluding remote operation. The licensee did not ask for an exemption for operability for the Surry units. Having the reactor head vents closed after publication of NRC role 10 CFR 50.44(c)(3)(iii) is a violation (280, 281/84-10-02). This discussed in letter EA 84-57.

c. Item II.E.1.1 and II.E.1.2 concerned the auxiliary feedwater system upgrading. Bypass indication has been installed and safety grade flow transmitters have been installed and satisfactorily tested; environmentally qualified equipment was used to upgrade the system. Item II.E.1.1 and its subitems 1 (short term) and 2 (long term) are closed. Item II.E.1.2 and its subitems 1 (Initiation) and 2 (Flow indication) are closed.

d. Item II.F.1, Attachment 4, Containment Pressure Monitors - the four normal range containment pressure monitoring instrumentations (0-65 psia) have environmentally qualified pressure transmitters (Rosemount 1153ABG); the wide range pressure transmitters (0-180 psia) are installed and periodically tested as required. The wide range containment pressure transmitters (Rosemount Model 1152AP7A22PB) are transmitters of the output code or type referenced in IE Bulletin 80-16, and will be replaced during the next refueling outage. Continuous display and recording of containment pressure is installed in the control rooms. Followup will continue under IEB 80-16; item II.F.1, Attachment 4, is closed.

e. Item II.F.1, Attachment 5, Containment Water Level Monitors - redundant qualified wide range containment water level monitors have been installed in the Unit 1 and 2 recirculation sumps, and are periodically tested. Item II.F.1, Attachment 5 is closed.

f. Item II.F.1, Attachment 6, Containment Hydrogen Monitors - the containment hydrogen monitors (analyzers) are installed and operable. The analyzers are in the calibration programs and Emergency Procedures. The heat tracing has also been installed, tested, and is operable (initiates on accident signals). Item II.F.1, Attachment 6 is closed.

g. Item II.F.2, Instrumentation for Inadequate Core Cooling - The licensee has installed core cooling monitors (see Inspection Report 280/80-01 and 50-280/80-40) and the Westinghouse Reactor Vessel Level Monitoring System. The systems are operable and in service. These items are closed; however, the incore thermocouple design and qualification criteria review is continuing. Item II.F.2 remains open pending this review and resolution.

h. Item II.K.3.1, Automatic PORV Isolation System - reports to the NRC concluded that this system would not provide significant benefits and should not be required; the NRC agrees in NRR letter of September 16, 1983 (Varga-Stewart). This system will not be installed; Item II.K.3.1 is closed.

10. 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.