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

Report Nos.: 50-280/84-17 and 50-281/84-18

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 Dates: May 6 - June 2, 1984

Inspection at Surry site near Williamsburg, Virginia

Inspectors: Kenneth M Jenison for — 28 June 84
D. J. Burke, Senior Resident Inspector — Date Signed

Kenneth M Jenison for — 28 June 84
M. T. Davis, Resident Inspector — Date Signed

Approved by: S A Elrod — 29 June 84
S. Elrod, Section Chief — Date Signed
Division of Reactor Projects

SUMMARY

Areas Inspected

This inspection involved 240 inspector-hours on site in the areas of plant operations and operating records, plant maintenance and surveillance, plant security, followup of events, open items and licensee event reports.

Results

In the areas inspected, no violations were identified.

## REPORT DETAILS

1. Persons Contacted

   Licensee Employees

   J. L. Wilson, Station Manager
   R. F. Saunders, Assistant Station Manager
   D. L. Benson, Assistant Station Manager
   D. A. Christian, Superintendent of Operations
   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 license 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.

3. Licensee Action on Previous Enforcement Matters

   a. (Closed) - Violation (280/82-31-01), Chemical Addition Tank manually isolated from Containment Spray systems during reactor startup and low power operation. Engineered Safeguards equipment checklists are performed to verify valve positions prior to exceeding 350°F in the RCS and prior to criticality, as well as weekly. Additional revisions have been made to Maintenance Operating Procedures and Administrative Procedures; retraining of operations and maintenance personnel has also been implemented.

   b. (Closed) - Violation (281/80-24-05). This violation concerned certain test discrepancies which were not specifically identified to ensure that the completed procedures and discrepancies would receive an adequate management review. Test engineers reviewing test results were instructed to record all discrepancies noted in the procedure as well as the recommended resolution in the reviewers section. Subsequent test discrepancies have been properly identified and reviewed.

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, no violations were identified. Specific areas of inspection and review included the following:

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

b. Unit 1 commenced a normal shutdown and cooldown on May 25, 1984, in preparation for a nine day snubber inspection and maintenance outage. No reactor trips or feedwater control problems occurred during the Unit shutdown or restart; the refurbishments, maintenance and testing on the main and bypass feedwater regulating valves this year have resulted in significant improvements in feedwater flow control and reductions of low power steam generator level trips.

c. Unit 2 operated at power for the duration of the reporting period; no trips or shutdowns occurred.

d. On May 18, the licensee discovered a valving error involving the Unit 1 charging pump cooling water subsystem.

The charging pump cooling water subsystem consists of two water systems as follows: The closed-loop component cooling water (CCW) system cools two seal coolers on each of three charging pumps. Service water (SW) removes heat from this CCW system via the intermediate seal coolers (CCW -SW heat exchangers). Service water also directly cools the charging pump lubricating oil coolers on each charging pump.

On May 18, the licensee discovered during a routine system walkdown that manual valve 1-SW-131 was closed, probably due to intensive maintenance activities in the area. This isolated SW to the "A" intermediate seal cooler, which was in service. The "B" intermediate seal cooler had SW flow but the CCW flow through the "B" intermediate seal cooler was in its normally isolated (standby) condition. Neither cooler was supplying cooled CCW. Technical Specification 3.13.B.4.b permits operation with one of the two intermediate seal coolers out of service for up to 48 hours but does not permit operation with both coolers out of service.

Although this condition existed for some 30 hours on the operating charging pump and equipment, no high temperature or alarms occurred due to the operation of the lubricating oil cooler and to heat losses to ambient through the seal coolers and piping. The redundant "B" intermediate seal cooler was operable and in its standby mode (isolated) and could have been called on if an alarm occurred. Since the licensee identified this condition, reported it, and is taking

prompt and significant action on this violation, the NRC will not issue a Notice of Violation and require a licensee response.

e. The inspectors verified that emergency diesel generator (EDG) number 3 louvers were mechanically blocked open due to the recent 10 CFR 50, Appendix R review finding of an improper power supply source to the EDG louver motors. An LER was submitted on the unanalyzed condition.

6. Surveillance and Maintenance Activities

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, EDG rooms, 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 schedule. Several LCOs in Section 3 of the TS were also verified on a periodic basis to insure compliance with the requirements. The inspectors also verified that at least two Senior Reactor Operators (SRO) 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. The inspectors observed portions of the Unit 1 main and bypass reactor trip breaker maintenance and testing during the planned May 25 to June 3, 1984 outage. Comprehensive inspections, maintenance, and testing were performed on the four Unit 1 breakers in accordance with Westinghouse (W) (and W Owners Group) recommendations and actions and the resulting NRC Generic Letter 83-28 (Salem ATWS Events). Within the areas inspected, no violations were identified.

The inspectors identified one potential concern with regard to the DB-50 reactor trip breaker undervoltage trip attachments (UTVA). A Westinghouse letter (NED-ELEC-18), dated December 17, 1971, specified four UVTA modifications to improve the reliability of the UVTA following reports of malfunctioning UVTAs at H. B. Robinson Station. Although documentation for the UVTA modifications or replacements was verified, the inspectors were not able to visually verify that all of the modifications were in place on the Unit 1 UVTAs. Since the extensive testing verified operability of the UVTAs, and new UVTAs are being considered by the licensee for all DB-50 reactor trip breakers, the inspectors had no significant concerns at this time. However, followup of this item will continue under open item (280/84-17-01), Verification of UVTA modifications.

7. Open Item/Inspector Followup Items Closeout

IFI (280/82-31-02), Containment Spray pump 1-CS-P-1A oil cooler isolation; valves 1-CS-56, -83, and -94 were found isolated (closed) on October 17, 1982. The licensee analyzed the potential effects of the cooling water being isolated to the pump oil cooler. No detrimental effects resulted due to the cool (45° F) RWST water pumped and the short duration of required operability of the pump (recirculation spray pumps operate after RWST is pumped to containment). This item is closed.

IFI (280, 281/82-31-03), Use of 'clean' procedures at the work site. Field copies of the procedures are being completed at the work sites (since 1982). Data transfer to "clean" copies of the procedures occurs when necessary, prior to transmittal of the documents to the records vault. This item is closed.

8. 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 280/84-08 concerned a reactor trip from low power when source range NI-31 reinstated with indication above the high flux trip setpoint and failed high. Several hours later, source range NI-32 was declared inoperable due to noise. Abnormal Procedures were implemented to prevent positive reactivity addition to the core. The pre-amp to NI-31 was subsequently replaced. The detector for NI-32 was replaced prior to restart.

(Closed) LER 280/84-9 concerned a dose equivalent Iodine-131 activity spike following unit shutdown. The spike was caused by known, but not specifically located, fuel element defects in the reactor core. Peak activity was 1.56 mirocuries/cc. Activity levels were monitored at least once per four hours until the level returned to less than 1.0 microcurie/cc.

(Closed) LER 281/84-5 concerned a reactor trip caused by a reactor coolant pump (RCP) trip. Water was discovered in the electrical containment penetration for the RCP motor leads, which grounded the 'C' phase of the leads in the penetration and caused the pump breaker to trip. The water was believed to have originated from feedwater leaks above the penetration. The faulty penetration was removed and replaced and three additional 4160 volt penetrations were inspected. The penetration below the faulty penetration also contained some water which was removed. The other two penetrations were dry. All the penetrations inspected were electrically and Type B tested satisfactorily. The feedwater leak was also repaired.

(Closed) LER 281/84-6 concerned the control room operators failure to recognize an increasing cooldown rate when the boron injection tank and associated lines were flushed to the primary system using colder RWST water instead of normal charging. The flush, performed under an approved procedure, had been scheduled to be performed prior to the cooldown. The maximum cooldown rate of 50° F/hr was exceeded by approximately 15° F/hr. Personnel involved were reinstructed and the LER was made required reading for operators.

(Closed) LER 281/84-9 concerned a reactor trip from 2 percent power on an intermediate range high flux trip. An electrician checking the switch for sample trip valve TV-SS-201A caused a spike on Vital Bus I which caused the spike on NI-35. The multimeter was selected to resistance instead of voltage. The electrician was reinstructed to use caution in dealing with safety equipment.

9. 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, search, authorized, badged and escorted as necessary for plant access control.

10. Regional Office Review

The following items were evaluated by the Reactor Safety, Radiation Safety and Safeguards, and Reactor Projects regional staff. Based on this review and the results of the latest Resident and Region based inspection activities in the affected functional areas, the following items (inspector followup, IFI; Deviations, DEV; licensee event reports, LER; violations, SLx; unresolved items, UNR) were determined to require no additional specific followup action and are closed:

UNIT 1

UNR 80-14-01 Auxiliary feedwater MOV terminations and motor insulation

IFI 80-27-01 Additional IEB 79-01B Environmental Qualification data required for documentation review

SL5 81-18-01 Deficiencies in IEB 80-11 program

SL5 81-32-01 Licensee's inspection of fire damper

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| DEV 81-32-02 | Fire dampers for intake structure oil storage room are not arranged to automatically close upon actuation of the fire suppression system |
| SL5 81-32-03 | Failure to complete all of the fire protection modifications required by fire protection safety evaluation report |
| IFI 81-32-04 | Repair sliding fire door to the lube oil storage room to be automatically self closing in the event of fire |
| IFI 81-32-05 | Inspection and test of new Smith detection systems |
| IFI 78-PC-03 | Determine licensee's practices for personnel neutron dosimetry |
| IFI82-C6-15 | II.F.1 (Additional accident monitoring-noble gas effluent monitor) review training of personnel TO operate, calibrate, and interpret results |
| IFI 82-C6-17 | II.F.1(2) (sample and analysis of plant effluents) review transportation of samples to laboratory for analysis |
| IFI 82-C6-19 | II.F.1(2) (sampling and analysis of plant effluents) review initial, replacement and retraining of personnel to collect, transport and analyze samples |
| IFI 82-C6-24 | II.F.1(3) (containment high-range monitor) review initial calibration, periodic recalibration and response checks |
| IFI 82-C6-25 | II.F.1(3) (containment high range monitor) review procedure f or operation and calibration |
| IFI 82-C6-29 | III.D.3.3 (improved inplant iodine instrumentation) review training, replacement training and retraining of personnel who collect, transport and analyze samples. |
| IFI 82-C6-30 | II.B.3, II.F.1 & III.D.3.3 Review program for compliance with technical specifications |
| IFI 82-14-01 | Prevention of unplanned releases (IE CIRC 79-21) |
| IFI 82-25-01 | Program to change filters in filter Unit FL-14 (Aux Bldg) |
| IFI 80-22-02 | Licensee provide RII with a schedule to complete valve weight verification |
| IFI 80-31-01 | Inadequate procedures for IEB 79-14 |
| IFI 80-41-01 | Administrative controls over inservice inspection |
| IFI 81-05-01 | QA Records missing for containment penetration welds |

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| IFI 78-13-06 | Establish seal lifetime for non EP seals, replace, or inspect affected snubbers on 31 day frequency |
| IFI 80-BU-08 | Examination of containment liner penetration welds |
| IFI 80-12-01 | Failure to meet commitment for timely performance of IEB 79-02 |
| IFI 79-CI-05 | Moisture leakage in stranded wire conductors |
| IFI 79-CI-11 | Design/construction interface problem |
| IFI 79-PC-01 | Petroleum jelly in certain GE induction relays |
| IFI 82-32-01 | Revise offsite monitoring procedure to provide for recording sampler air flow data |
| UNR 82-32-02 | Revise first aid procedures to include contamination control measures |
| IFI 78-13-06 | Establish seal lifetime for non EP seals, replace, or inspect affected snubbers on 31 day frequency |
| IFI 82-26-01 | Summary analysis report for containment integrity determination |
| IFI 81-21-02 | Obtain evaluation and summary report on thermal expansion test results |
| IFI 78-33-01 | Verify DC 77-08 is completed |
| IFI 80-06-01 | Items 5A, 5B, 5C concerning procedure-SBLOCA-Changes and environmental note-book |
| IFI 80-06-02 | Complete SBLOCA training and walk-throughs prior to Unit 1 and Unit 2 startup |
| DEV 80-13-01 | Changes and Reviews not performed in accordance with 10 CFR 50.59 |
| IFI 80-20-03 | RS Hex calculations (stress) and gaskets |
| IFI 81-CI-12 | Inadequate periodic test procedure of PWR protection system |
| IFI 81-CI-14 | Main steam isolation valve failure to close |
| SL5 81-21-01 | Failure to obtain approval prior to changing step E.3.2 of periodic test 28.11 |
| IFI 82-24-01 | Back-up for RO on RM pinels |

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| IFI 82-24-02 | TS surveillance requirement cannot be met (performed) |
| IFI 82-34-02 | Valve ID tags inadequate |
| IFI 80-03-01 | Inadequate procedures |
| IFI 78-CI-18 | UL fire test |
| IFI 78-PC-09 | Stem mounted limit switches providing position and for cont isolation (reopen 78-BU-04 per memo) |
| DEV 78-17-01 | Failure to follow procedures by not completing and documenting maintenance procedures |
| IFI 80-BP-01 | Followup of licensee review of electric power system adequacy as per Bryan memo of March 6, 1980 |
| IFI 80-CI-16 | Operational deficiencies in rosemount model 510DU trip units and model 1152 pressure transmitters |
| IFI 80-SR-02 | Inspection of licensee actions on commitments to IEB 80-04 summary of inspection report H. A. Wilber mail stop EW 359 |
| IFI 79-60-01 | Valve check lists incomplete or in error |
| IFI 79-67-02 | Verify hydrogen system Class 1 |
| LER 79-45 | Discrepancy in damper operation caused by a design not in accordance with the FSAR supplemental 071582 |
| LER 81-31 | RY block walls will be removed and replaced with "blow-off" no lock on breaker handle for loop "A" not leg stop valve burke |
| LER 81-51 | Charging service water subsystem placed in service after maintenance without being tested |
| LER 81-54 | Unsampled release from stripped feed steam heater 1-BR-E-10A maintenance without being tested |
| LER 82-90 | High spike on the vent-vent gaseous monitor, gas leaked through a damaged quick-disconnect on sample vessel |
| LER 82-94 | TV-SS-106A and B failed to fully close after chemists had completed taking a RCS sample cause unknown at this time |
| LER 82-104 | Cardon system was inoperable due to solenoid valve sticking |
| LER 82-106 | Both pressurizer PORV's inoperable due to a leaking diaphram and due to low air pressure |

UNIT 2

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| UNR 80-30-01 | Ebasco review inspection records for U-=Bolt installation for possible 3 way restraint |
| IFI 80-35-01 | Improper pipe support installation/inspection |
| IFI 80-35-02 | QC inspector qualifications |
| IFI 81-05-01 | QA records missing for containment penetration welds |
| UNR 80-15-01 | Auxiliary feedwater MOV terminations and motor insulation |
| IFI 80-31-01 | Additional IEB 79-01B environmental qualification data required for documentation review |
| IFI 80-46-02 | S&W standard drawing review |
| SL5 81-18-01 | Deficiencies in Masonry Walls IEB 80-11 program |
| IFI 81-32-01 | Licensee's inspection of fire damper |
| IFI 81-32-04 | Repair sliding fire door to the lube oil storage room so as to be automatically self closing in the event of fire |
| IFI 81-32-05 | Inspection and test of new Smith detection systems |
| IFI 82-26-01 | Summary analysis repo.t for containment inegrity determination |
| IFI 78-PC-03 | Determine licensee's practices for personnel neutron dosimetry |
| IFI 80-CI-16 | Operatinal deficiencies in rosemount model 510DU trip units and model 1152 pressure transmitters |
| IFI 80-SR-02 | Inspection of licensee actions on commitments to IEB 80-04 |
| IFI 80-08-01 | Same as 80-06-01 |
| IFI 80-08-02 | Same as 80-06-02 |
| IFI 80-20-03 | Appearance of data transfer breakdown between the contaminated working document and the official procedure in records management |
| IFI 81-CI-12 | Inadequate periodic test procedure of PWR protection system |
| IFI 81-CI-14 | Main steam isolation valve failure to close |

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| IFI 78-PC-09 | Stem mounted limit switches providing position ind for cont isolation (reopen 78-BU-04 per memo) |
| IFI 78-19-01 | Inadequate purchase requisition documentation category and storage requirements missing |
| IFI 81-04-03 | Weak sampling procedures and reviews |
| IFI 81-08-01 | Check and calibrate process vent instrumentation |
| IFI 81-12-02 | Revise/correct PT 39.B.1 and snubber TDs |
| SL5 81-33-01 | Failure to follow procedure AP5.13 containment particulate and gaseous radiation monitor alarms |
| IFI 82-35-01 | Review tags and maintenance on SD valves |
| IFI 79-19-01 | System for identification/investigation of significant PD vs TLD differences |
| IFI 79-27-01 | Satisfactory completion of plant evacuation and personnel accountability |
| UNR 80-02-01 | Violation of technical specification 6.1.10.0.1 |
| IFI 80-20-10 | Violation |
| IFI 79-CI-05 | Moisture leakage in stranded wire conductors |
| IFI 79-CI-11 | Design/construction interface problem |
| IFI 79-PC-01 | Petroleum jelly in certain GE induction relays |
| IFI 79-19-01 | System for identification/investigation of significant PD vs TLD differences |
| IFI 79-27-01 | Satisfactory completion of plant evacuation and personnel accountability |
| UNR 80-02-01 | Violation of technical specification 6.1.10.0.1 |
| UNR 78-13-06 | Establish seal lifetime for non EP Seals, replace, or inspect affected snubbers on 31 day frequency |
| UNR 78-21-01 | Tech Spec form of F-SUB-Q is not correct. See T15 3.12.B.1 |
| UNR 78-21-02 | PT 28.4 References a non-existent Technical Specification |
| LER 81-72 | Safety injection motor operated valve 2869B failed to operate from the control room |

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| LER 81-74 | Higher than normal activity was detected in the storm drain sys the release was caused by leaking of 5 tubes in heat exchanger bundle and failure of heater drain receiver |
| LER 82-30 | Reactor coolant system boron dilution |