



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

Report Nos. 50-338/82-21 and 50-339/82-21

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

Facility Name: North Anna Units 1 and 2

Docket Nos. 50-338 and 50-339

License Nos. NPF-4 and NPF-7

Inspection at North Anna site near Mineral, Virginia

Inspectors: C. Julian for 8/2/82  
 D. F. Johnson Date Signed

C. Julian for 8/2/82  
 M. B. Shymlock Date Signed

Approved by: C. Julian 8/2/82  
 C. Julian, Section Chief, Division of Project and Resident Programs Date Signed

SUMMARY

Inspection on June 6 - July 9, 1982

Areas Inspected

This routine inspection by the resident inspector involved 238 inspector hours on site in the areas of licensee event reports, refueling activities, outage activities, surveillance and maintenance activities, plant operations, bulletin followup and followup on significant events.

Results

Of the eight areas inspected, no violations were identified.

## DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*W. R. Cartwright, Station Manager
- E. W. Harrell, Assistant Station Manager
- J. A. Hanson, Superintendent - Technical Services
- J. R. Harper, Superintendent - Maintenance
- D. L. Benson, Superintendent - Operations
- G. Paxton, Superintendent - Administrative Services
- J. M. Mosticone, Operations Coordinator
- J. P. Smith, Engineering Supervisor
- F. Terminella, Engineering Supervisor
- P. T. Knutsen, Engineering Supervisor
- R. A. Bergquist, Instrument Supervisor
- J. R. Stratton, Mechanical Maintenance Supervisor
- D. E. Thomas, Electrical Supervisor
- A. H. Stafford, Health Physics Supervisor
- A. L. Hogg, Jr., Site QC Manager
- F. P. Miller, QC Supervisor
- M. E. Fellows, Staff Assistant
- K. A. Huffman, Clerk

Other licensee employees contacted included technicians, operators, mechanics, engineers, and office personnel.

#### \*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on July 9, 1982, 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. Plant Status

#### Unit 1

- a. The scheduled refueling outage continued during this inspection period.

b. The following major items are being followed by the resident inspectors.

(1) Foreign objects found in steam generators A and C.

The metal objects were evaluated by Westinghouse the nuclear steam system supplier (NSSS) and finally identified as inconel nuts from the control rod guide tube hold-down pins. The upper internals have been removed and placed in the reactor cavity area. The licensee is conducting numerous inspections to determine the extent of damage and is currently reviewing the data in conjunction with Westinghouse to determine adequate corrective actions. The resident inspectors are monitoring the progress of the licensee's inspection efforts. This is an inspector followup item (338/82-21-01)

(2) Steam generator tube damage

As a result of the foreign objects described above, the SG tube ends were severely peened and some tube ends were split. The damage to SG's A and C was confined to the tube ends and tube sheet on the hot leg side. Approximately 75% of the tubes in each SG were affected. Preliminary evaluation indicates that the damage is not significant, will allow nondestructive testing (NDT) of the steam generator tubes, and will not effect SG performance. The type and extent of any needed repair has not been finalized at this time.

This is an inspector followup item (338/82-21-02)

(3) Reactor coolant system flow splitter

In April 1979, during preoperational testing of Unit 2, cracks were identified in the flow splitters located in the reactor coolant pump (RCP) suction piping. Based on an evaluation and recommendation by Westinghouse, the flow splitters were removed from Unit 2.

A safety evaluation and technical review made by VEPCO and Westinghouse demonstrated that the flow splitter plates on Unit 1 were structurally sound. The office of Nuclear Reactor Regulation, Inspection and Enforcement, and Region II concurred with the safety evaluation and permitted North Anna 1 to resume power operation.

A technical specification change was issued on April 27, 1979, Amendment 10, requiring that the flow splitters in each SG to RCP elbow to be ultrasonically examined whenever a RCP shaft deflection of greater than 20 millimeters is indicated and at least once every 18 months.

As a result of ultrasonic examination performed in February 1981 indication of further cracking in the A loop flow splitter was identified with very minor indications on the B & C loops. Reinspection conducted on October 15, 1981 showed the indications in loop A flow splitter had grown significantly over the last eight months in that two of the indications appeared to have combined and increased in length from 5½ inches to a total of 12 inches. Reinspection conducted on June 4, 1982 confirmed that indications in the A loop flow splitter had grown again with a total length of 15.5 inches. The licensee is making provisions for the removal of the A loop flow splitter during this current outage.

This is a inspector followup item (338/82-21-03)

(4) Thermal Sleeves

Due to problems experienced at other Westinghouse plants with cracked and missing thermal sleeves, the licensee is conducting NDT and visual examination of the thermal sleeves on North Anna Unit 1. The results of these examinations will be followed by the resident inspectors.

This is an inspector followup item (338/82-21-04).

Unit 2

- a. On June 10, 1982, the unit was taken critical for low power physics testing following a refueling outage. The unit was put on the line June 11 and operated at or near capacity load except for a ramp down for overspeed test on June 11, and for main turbine balancing on June 16.
- b. The unit was shutdown on July 7, 1982 to investigate a low level noise detected by the installed acoustic monitors in the A steam generator. Inspection revealed that a recently reinstalled tube lane blocking device on the secondary side was loose due to apparent improper installation. The licensee concluded that the loose device was the source of the detected noise.

Similar devices on the B and C SG's were inspected and found to be rigid. Inspection of all three devices also revealed welding defects on the hold down nuts on the attaching sleeve. All sleeves were removed and all hold down nuts rewelded and strengthened.

- c. During this outage, the licensee is examining thermal sleeves in the reactor coolant system by NDT due to the problems discussed in paragraph 5b (4).

This is an inspector followup item (339/82-21-01)

## 6. Review of Plant Operations

Containment entries were made during the current Unit 1 refueling outage. These entries were made to observe work in progress, overall housekeeping, adherence to health physics requirements and witnessing of fuel handling activities.

By observation during the inspection period, the inspector verified the control manning requirements of 10 CFR 50.54 (k) and that Technical Specifications were being met. In addition, the inspector observed shift turnovers to verify that continuity of system status was maintained. The inspector periodically questioned shift personnel relative to their awareness of plant conditions.

Through log review and direct observation during tours, the inspector verified compliance with selected Technical Specification Limiting Conditions for Operation.

During the course of these inspections, observations relative to protected and vital area security were made, including access controls, boundary integrity, search, escort, and badging.

On a regular basis radiation work procedures (RWP's) were reviewed and the specific work activity was monitored to assure the activities were being conducted per the RWP's. Radiation protection instruments were verified operable and calibration/check frequencies were reviewed for completeness.

The inspectors kept informed on a daily basis of overall status of both units and of any significant safety matter related to plant operations. Discussions were held with plant management and various members of the operation staff on a regular basis. Selected portions of operating logs and data sheets were reviewed daily.

The inspectors conducted various plant tours and made frequent visits to the control room. Observations included: witnessing work activities in progress, status of operating and standby safety systems and equipment, confirming valve positions, instrument readings and recordings, annunciator alarms, housekeeping and vital area controls.

No violations were identified in these areas.

## 7. Licensee Event Report (LER) Followup

The following LER's were reviewed and closed. The inspector verified that reporting requirements had been met, causes had been identified, corrective actions appeared appropriate, generic applicability had been considered, and the LER forms were complete. Additionally, for those reports identified by asterisk, a more detailed review was performed to verify that the licensee had reviewed the event, corrective action had been taken, no unreviewed safety questions were involved, and violations of regulations or Technical Specification conditions had been identified.

- 338/82-14 The flow path from Boric Acid Tanks to the Reactor Coolant System was removed from service.
- 338/82-18 The containment personnel hatch inner door seal did not meet acceptance criteria
- 338/82-19 The Delta T/TAVE Protection Channel B was removed from service for low and erratic reading
- 338/82-20 The cannister that encloses the radiation detectors for containment gaseous and particulate was not properly sealed
- \*338/82-21 The Auxiliary Feed Pump was inoperable for a period of 78 minutes
- \*338/82-22 The level in the Emergency Condensate Storage Tank dropped below minimum volume.
- 338/82-23 Containment average temperature exceeded 105° F
- 338/82-24 Dose Equivalent I-131 exceeded 1.0 microcurie/gram
- 338/82-26 Fire door S-71-17 was declared inoperable
- 338/82-28 A steam generator support temperature indicated below 225°F
- 338/82-29 Fire doors S-54-13 and S-71-17 were declared inoperable
- 338/82-31 Containment average temperature exceeded 105°F
- 338/82-33 Fire Door M-80-1 was found blocked open
- 338/82-35 The 2B fuel oil storage system contained less than 45,000 gallons of fuel
- 338/82-37 Containment internal air partial pressure exceeded limit
- 338/82-38 Fire door S-71-17 was declared inoperable
- 338/82-46 Control Room (Unit 1) door seal failed.
- 339/82-11 Fire door M-80-2 was blocked open
- 339/82-15 Pressurizer Code Safety valve setpoint found low during surveillance
- 339/82-26 Suction was lost to the Residual Heat Removal System
- 339/82-30 IRPI deviated from group demand position by greater than 12 steps

339/82-31        The outer personnel hatch door had an unacceptable leak rate

8.    IE Bulletin 79-15

The licensee's final response for IEB-79-15, dated September 14, 1979 serial no. 582/071179, was reviewed. As per the Sniezek, NRR, memo dated May 4, 1981, the resident inspector evaluated the response and had no further questions on this subject. IE Bulletin 79-15 is closed (IFI 338/79-BU-15 and 339/79-BU-15 are closed).