



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

Report Nos. 50-338/82-34 and 50-339/82-34

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

Inspector: John F. Rogge /fn Nov 23, 82  
M. B. Shymlock Date Signed

Accompanying Personnel: P. Bibb

Approved by: HC Dama /fn 11/23/82  
C. Julian, Section Chief, Division of Project and Resident Programs Date Signed

#### SUMMARY

Inspection on October 6 - November 5, 1982

#### Areas Inspected

This routine inspection by the resident inspector involved 142 inspector hours on site in the areas of outage activities, surveillance and maintenance activities, instrument calibration, licensee event reports, followup of previously identified items, and plant operations.

#### Results

Of the six areas inspected, no violations or deviations 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  
\*R. T. Johnson, QA Engineer  
\*M. E. Fellows, Staff Assistant  
\*K. A. Huffman, Clerk

Other licensee employees contacted included technicians, operators, mechanics, security force members, and office personnel.

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on October 29, 1982, and November 4, 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

The scheduled refueling and maintenance outage continued during this inspection period. The following items related to specific Unit 1 activities:

## a. Steam Generator Tube Damage

(Closed) 338/82-21-02. The repair work on the A and C steam generators by Babcock & Wilcox Company has been completed. This repair is documented in the licensee letter to NRR titled, North Anna Power Station Unit No. 1 Steam Generator Impacted Tube Ends Recovery Evaluation, Reactor Coolant Pump Diffuser Adapter Bolt Failure dated October 26, 1982, Serial No. 601.

(Closed) 338/82-31-01. Two tube ends in the C steam generator were flat face machine milled to less than 0.0625 inches from the tube sheet, thereby, causing removal of some of the fillet weld material. It was verified that a minimum of 0.017 inches of weld material remained about the tube sheet. This will ensure that a sufficient corrosion boundary still exists. A dye penetrant check was made of the welds to verify integrity of the weld material.

## b. Thermal Sleeves in Reactor Coolant Piping

(Closed) 338/82-21-04. The thermal sleeves were repaired or recovered and this item is closed.

## c. A Loop Reactor Coolant Pump

(Closed) 338/82-18-03. All reactor coolant pump diffuser bolts were replaced on all three pumps. The failure mechanism is documented in a report transmitted to NRR (report identified in item a above).

## d. Loop Stop Valve Guide Missing

(Closed) 338/82-18-04. The reactor vessel lower internals were removed to search this area and to remove pieces previously found there. Six pieces of the valves guide bar were recovered; four from the vessel bottom and two from the lower core plate. Each piece was photographed and these photographs were used to verify that all of the guide bar was recovered.

## e. In inspection report 50-338/82-29 and 50-339/82-29 under open item 338/82-18-01, Guide Tube Support Pin Replacement, it was stated that all pieces have been accounted for and retrieved. This was not accurate.

The small metal fragement found stuck in the end of a tube in the C steam generator hot leg was not all of the split pin nut fragement. During radiographic examinations of the steam generator drain lines the presence of a metal fragment was noted in the C loop hot leg 2 inch drain line. This line was cut and the metal fragment removed. It has been determined that this fragment is the major part of the split pin nut.

- f. During the current Unit 1 outage an extensive search and retrieval operation was performed to remove numerous loose parts from the reactor coolant system. These operations were to remove known parts and also parts that may have been introduced during the outage.

This recovery operation program was documented in a licensee letter to NRR titled Reactor Coolant System Loose Parts Recovery Program North Anna Power Station Unit No. 1, dated November 4, 1982, Serial No. 628.

#### Unit 2

During this inspection period the unit operated at or near capacity load.

#### 6. Unit 2 License Conditions

(Open) 339/82-08-18. AC prelube pumps shall be modified to DC power operation. The Commission issued Amendment No. 22 dated May 3, 1982 to the Unit 2 license that revised the completion date for this condition 2.c(15)(h)(2), until the October 1982 maintenance outage. The Commission recently issued Amendment No. 27 dated October 29, 1982 to the Unit 2 license that revised the completion date for this condition, 2.c(15)(h)(2). These modifications shall be completed no later than the second refueling outage and have already been completed on the 2H diesel generator.

(Open) 339/82-08-20. The day tank overflow line shall be rerouted to return excess fuel to the seven day fuel oil storage tank. The Commission issued Amendment No. 22 dated May 3, 1982 to the Unit 2 license that revised the requirement and the completion date for this condition, 2.c(15)(h)(4), until the October 1982 fall maintenance outage. The Commission issued Amendment No. 27 dated October 29, 1982 to the Unit 2 license that revised the completion date for this condition, 2.c.(15)(h)(4). This licensee condition concerns fuel oil storage and transfer system modifications which include the installation of a separate high level alarm for each day tank and the installation of independent pressure switches for each pump which will be set to stop the pumps on high day tank level, (non-qualified pressure switches will be installed by October 31, 1982). Completion shall be no later than the second refueling outage. The non-qualified pressure switches have been installed on both Unit 1 diesel generators.

## 7. Followup of Previously Identified Items

- a. (Open) 338/82-29-02 and 339/82-29-02. Designation of responsibility for the overall Technical Specification (TS) surveillance program. The surveillance group within Engineering has completed a review which included:
- (1) Operations surveillance documented by logs, operating procedures, abnormal procedures, maintenance operating procedures
  - (2) Periodic surveillance which are required while in an Action Statement
  - (3) Miscellaneous requirements which include administrative controls and license conditions for periodic actions.
  - (4) Maintenance Department surveillances covered by mechanical maintenance procedures, electrical maintenance procedures or other documents.
- b. (Open) 338, 339/82-31-04. 100% review of surveillance requirement by the Quality Assurance Department. At the end of this inspection period, the review is about 40% complete.

## 8. Calibration

During the period from October 25 through 29, Mr. H. Bibb, NRC Resident Inspector at the St. Lucie Nuclear Plant, visited the site. He inspected certain areas in the Instrumentation and Controls Department. The inspection was to determine whether the calibration of components and equipment associated with safety related systems was in conformance with the requirements of the Technical Specifications and approved guides and standards. The following procedures were reviewed for technical accuracy, clarity, completeness, traceability and proper authorization:

1-PT-36.1	Reactor Protection and ESF Logic Test
EMP-P-RT-135	Protective Relay Maintenance For Bus "2A" Undervoltage (RPS) Input
ICP-L-477	Instrument Calibration Procedure, Steam Generator 1A Wide Range Level
ICP-RM-1-CH-128	Reactor Coolant Letdown High Range Radiation Monitor Calibration
ICP-P-1-BP-2	Boric Acid Bypass Flow
ICP-NI-1-N41	Power Range Channel N41 Protection Channel 1
ICP-P-1-P-LM-100A	Reactor Containment Pressure Protection Channel 1

ICP-P-1-L-459

Pressurizer Level Protection Channel 1

ICP-P-1-L-484

Steam Generator 1B Narrow Range Level Protection Channel 1

Instruments used to conduct these procedures were audited for calibration frequency, accuracy and traceability to the National Bureau of Standards. Additionally, NUREG/CR-1369, Rev. 1, Procedures Evaluation Checklist for maintenance, test and calibration procedures used in nuclear power plants, was used to identify procedural deficiencies that could lead to errors in performance.

No violations or deviations were identified in this area.

In addition to the calibration review, the inspector also conducted a sample comparison of the annunciator response list 1-AR-1 with the actual annunciator windows on the 1A Panel of the Main Control Board. One difference was noted. Page 4 of 1-AR-1 identifies window number D-7 as "Blank". The actual window indicates: H<sub>2</sub> ANAL SYS TROUBLE or HI Hydrogen.

This was a recent plant change which has not been completed from the procedure modification aspect. Completion will be audited in a subsequent inspection. Until that time, this will be identified as Inspector Followup Item (IFI-338/82-34-01).

#### 9. 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.

338/82-005	Reactor Coolant System Unidentified Leakage greater than 1 GPM was determined to be 1.61 GPM
*338/82-027	Pressurizer Level Channel L-459 indicated high by 5%
338/82-034	Fire Door S54-8 failed to close automatically.
338/82-039	Steam Flow Channel IV removed from service (off scale low)
338/82-047	Setpoints for the Seismic Trigger for the Triaxial Time History Accelerograph were found to exceed setpoints.
338/82-048	Fire door S71-19 would not latch and S54-13 would not close automatically.

- \*338/82-049           By radiography two thermal sleeves were noted to have defective or failed welds.
- 338/82-050           Fire door A80-1, A80-2 were not on a periodic test program
- \*338/82-052           Loose parts in S/G were identified as split pin retaining nuts
- 338/82-053           Some of the containment isolation valves had unacceptable leak rates.
- \*338/82-054           Valve guide missing from A loop cold leg stop valve.
- \*339/82-008           All three accumulator isolation valves were closed with system pressure greater than 1000 PSIG.
- 339/82-016           2J Emergency Diesel had a scored lower main bearing No. 14
- \*338/82-020           Containment particulate and gaseous activity detectors were removed from service without securing purge.
- 339/82-021           RWST boron concentration was below limit.
- \*339/82-022           Both trains of Quench Spray Subsystem and Recirculation Spray System were inoperable.

#### 10. Plant Operation and Routine Inspections

During review of several valve checkoff sheets and the administrative locked valve log (per Administrative Procedure ADM-29.1), it was not apparent which system was controlling. The Superintendent of Operations committed to reviewing all Technical Specifications to determine which valves required a locked position for administrative control and then review St. Lucie's system (valve checkoff sheets and locked valve log). There were no valves found in an improper position or properly locked. This will be identified as an inspector followup item 338/82-34-02, 339/82-34-01.

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

By observations during the inspection period, the inspector verified that the control room manning requirements 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 reviews and direct observations during plant 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, searches, escorts, 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 inspector 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 operations staff on a regular basis. Selected portions of operating logs and data sheets were reviewed daily.

The inspector 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.