



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

Report No.: 50-338/78-14

Docket No.: 50-338

License No.: NPF-4

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

Facility Name: North Anna Unit No. 1

Inspection at: Mineral, Virginia

Inspection conducted: August 14-18, 1978

Inspectors: J. E. Ouzts  
B. T. Moon

Approved by: W. J. Kellogg, Jr.  
P. J. Kellogg, Chief  
Nuclear Support Section No. 2  
Reactor Operations and Nuclear Support Branch

8/18/78  
Date

Inspection Summary

Inspection on August 14-18, 1978 (Report No. 50-338/78-24)

Area Inspected: Routine unannounced inspection of calibration and surveillance for Unit No. 1. The inspection involved 62 inspector-hours on site by two NRC inspectors.

Results: Within the two areas inspected, no items of noncompliance or deviations were identified.

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## DETAILS I

Prepared by: W. H. Bradford  
 J. E. Ouzts, Reactor Inspector  
 Nuclear Support Section No. 2  
 Reactor Operations and Nuclear  
 Support Branch

9/22/78  
 Date

Dates of Inspection: August 14-18, 1978

Reviewed by: W. H. Bradford  
 P. J. Kellogg, Chief  
 Nuclear Support Section No. 2  
 Reactor Operations and Nuclear  
 Support Branch

9/22/78  
 Date

1. Persons Contacted

- \*J. A. Ahladas, Station Manager
- \*W. R. Cartwright, Superintendent Station Operations
- \*J. Harper, Instrument Supervisor
- \*J. D. Kellams, Operating Supervisor
- \*E. R. Smith, Jr., Acting Supervisor, Engineering Services
- \*D. L. Smith, Resident QC Engineer
- D. Snodgrass, I&C Supervisor
- B. R. Sylvia, Director of Nuclear Operations
- D. C. Woods, NRC Coordinator

Five I&C technicians and three mechanics were also contacted.

\*Denotes those attending exit interview.

2. Licensee Action on Previous Inspection Findings

Not inspected.

3. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance or deviations. Three unresolved items disclosed during the inspection are discussed in paragraphs 5 and 7.

4. Exit Interview

The inspectors met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on August 18, 1978. The inspector summarized the scope and findings of the inspection as discussed in paragraphs 5, 6 and 7. The licensee acknowledged the inspector's

findings and agreed to provide additional information or initiate corrective action where required.

5. Instrumentation Calibration Program Verification

The inspector conducted a review of the following calibration procedures and associated test results:

ICP-1-F-415 - Reactor Coolant Flow "A" Protection Channel II  
 ICP-1-F-429 - Reactor Coolant Flow "A" Protection Channel I  
 ICP-P-1-F-425 - Reactor Coolant Flow "B" Protection Channel II  
 ICP-P-1-F-426 - Reactor Coolant Flow "B" Protection Channel III  
 ICP-P-1-F-476 - Steam Generator Feed Flow Protection Channel IV  
 ICP-P-1-F-477 - Steam Generator Feed Flow Protection Channel III  
 ICP-P-1-F-484 - Steam Generator Steam Flow Protection Channel III  
 ICP-P-1-F-485 - Steam Generator Steam Flow Protection Channel IV  
 ICP-P-CN-101A - Main Condenser Pressure  
 ICP-P-CN-101B - Main Condenser Pressure  
 ICP-P-1-FW-100A - Auxiliary Steam Generator Feed Pump Feedwater  
 Flow  
 ICP-P-1-F-FW-100B - Auxiliary Steam Generator Feed Pump Feedwater  
 Flow  
 ICP-P-1-F-932 - Safety Injection Line Flow - Loops Hot Leg  
 ICP-P-1-L-459 - L-459 Pressurizer Level Control  
 ICP-P-1-P-446A - P-446A - First Stage Turbine Pressure  
 ICP-P-1-P-474 - Steam Line 1A Steam Pressure Protection Channel II  
 II ICP-P-1-L-474 - Steam Generator 1A Narrow Range Level Protection  
 Channel I  
 ICP-P-1-P-L-M 100A - Reactor Coolant Pressure Protection Channel I  
 ICP-N-1-1-N41 - Calibration of Power Range - N41  
 ICP-P-1-P-455 - Pressurizer Pressure Protection Channel I  
 ICP-P-1-P-927 - Accumulator Tank "B" Pressure  
 ICP-P-1-P-929 - Accumulator Tank "C" Pressure  
 P-1-L-QS-100A - L-QS-100A - Refueling Water Storage Tank  
 P-1-L-QS-100B - L-QS-100B - Refueling Water Storage Tank Level  
 P-BR-156A Primary Grade Water Pump Discharge Pressure  
 T-CC-161 - Component Cooling Water Common Header Temperature  
 ICP-P-1-FBD-100A - Steam Generator Blowdown Flow Indication  
 F-BR-125 - Primary Water Pump Discharge Flow  
 ICP-L-BR-103B - Boron Recovery Tank Level  
 L-BR-116A - Primary Grade Water Level 1A  
 ICP-P-1-7-BR-121A - Boron Recovery Tank Temperature  
 ICP-F-CC-112A - Reactor Coolant Pump UBLD Cooler Outlet Flow  
 ICP-P-1-L-QS-100D - LQS-100D - Refueling Water Storage Tank Level

The procedures and calibration results were reviewed to verify:

Reviews and approvals were being conducted, and data was recorded and evaluated.

Test instruments were listed and identified in test results. -----

Adherence to technical specifications requirements and limiting conditions for operation were observed.

Technical contents were correct and verification of return of equipment to service and removal of test equipment were being done.

The inspector conducted an inspection of measuring and test equipment laboratory facilities and reviewed laboratory records as follows:

Instrumentation and control standards laboratory

Measuring and test tool storage and issuing facility.

These facilities were inspected to verify:

That standard test instruments were labeled and included in the equipment calibration program

Instruments were calibrated on schedule and labeled with calibration status.

Storage facilities were proper for protecting the equipment.

Nonconforming equipment was being tagged and provided with segregated storage.

Certification and calibration records were available and being maintained for measuring and test equipment. .

The inspector used one or more of the following acceptance criteria for evaluating the above items in the calibration program:

VEPCO Topical Report - (17.2.12)

Quality Assurance Program

Technical Specifications (3/4.3)

ANSI N45.2(1971) (13)

ANSI N18.7 1972 (5.3.6)

Inspector Judgement

Within the areas inspected no items of noncompliance or deviations were identified. In one area inspected the inspector found Q-type measuring and test tools stored in the same cabinet with non Q-type measuring and test tools. The licensee was maintaining control in his equipment log out book where the Q number of the test equipment was logged along with the safety system the equipment was being used on. The licensee recognized the weakness in his system as a result of this common storage and agreed to correct the problem. This item will remain unresolved pending this corrective action and verification by NRC at a subsequent inspection (338/78-14-01).

6. Inspection of Chemistry Laboratory

An inspection of the chemistry laboratory and associated equipment and records was conducted by the inspectors to verify that procedures and equipment were available for determining coolant chemical analysis as required by technical specifications. The method of standards preparation and verification of shelf life of chemicals were also reviewed.

The inspectors used one or more of the following acceptance criteria for evaluating the above items in the chemistry control program:

Technical Specifications

Quality Assurance Program

Inspector judgement

Within the areas inspected no items of noncompliance or deviations were identified.

7. Surveillance Test Procedures and Results Verifications

The inspectors conducted a review of test procedures and associated test results as follows:

1-PT-35.1.1 - Containment Pressure Functional Test Channel I

1-PT-84 - AC Distribution

1-PT-82A - 1H Diesel Generator Test

1-PT-41.1 - Auxiliary Shutdown Panel Mounted Instrument Channel Check

1-PT-57.1A - ECCS Subsystem Low Head Safety Injection Pump  
(1-SI-P-1A)

- 1-PT-21.1 - Hot Channel Factors
- 1-PT-62.4 - Personnel -- Air Lock Seal Leakage
- 1-PT-58.3 - RWST Chemistry
- 1-PT-52.1 - Measurement of Controlled Leakage
- 1-PT-24 - Calorimetric

The inspectors used one or more of the following acceptance criteria for the above items:

VEPCO Topical Report - VEP-1-A; Test Control (17.2.11) and Measuring and Test Equipment

ANSI N18.7 1972 (5.1.2) (5.1.7)

ANSI N45.2 (1971) Section 12

Technical Specifications (3/4.2)

NPS Quality Assurance Manual - Section 11

Inspector Judgement

The test procedures and test results were reviewed to verify:

That test prerequisites and plant conditions were specified and reviewed, and approvals had been performed.

That contents of the procedures were correct, and the tests were performed on schedule.

That the test instruments were listed in the procedures and the instruments used were identified in the results.

That test results were recorded and compared with acceptance criteria and the return of the equipment to service and removal of test equipment was verified upon completion of the test.

Within the areas inspected no items of noncompliance or deviations were identified. In one area inspected in the performance of RCS flow measurement per 1-PT-27 on June 27, 1978, a correction had been made in the loop A thermal power calculation and was not carried through to calculating the flow. In another area the inspectors found no requirement to verify the calibration of installed instruments where used in the performance of tests, as observed in the review of results of

1-PT-57.1A "ECCS Subsystems Low Head Safety Injection Pump (1-SI-P-1A).-----  
The licensee acknowledged these findings and agreed to investigate to determine the correct value that should have been used in the flow calculation and where installed instruments are used for testing, a step be added to the procedure to verify the calibration of these instruments. These items will remain unresolved pending corrective action and verification by NRC at a subsequent inspection 338/78-24-02; 338/78-24-03).