



UNITED STATES  
 NUCLEAR REGULATORY COMMISSION  
 REGION II  
 101 MARIETTA ST., N.W., SUITE 310 J  
 ATLANTA, GEORGIA 30303

Report Nos. 50-338/81-13 and 50-339/81-10

Licensee: Virginia Electric and Power Company  
 Richmond, VA 23261

Facility Name: North Anna Unit 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: *E. H. Webster*  
 E. H. Webster

*May 27, 1981*  
 Date Signed

Approved by: *H. C. Dance*  
 H. C. Dance, Section Chief, Resident and  
 Reactor Project Inspection Division

*5/28/81*  
 Date Signed

SUMMARY

Inspection on April 6 - May 5, 1981

Areas Inspected

This routine inspection by the resident inspector involved 29 inspector-hours on site in the areas of operational safety, maintenance, surveillance, training, operating license order compliance, previously identified areas, and fire protection requirement.

Results

Of the seven areas inspected, no violations or deviations were identified in six areas. One apparent violation was identified in one area (violation -failure to establish replacement training and retraining programs for engineers and auxiliary operators per Technical Specification 6.4 -paragraphs 7a and b).

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## DETAILS

### 1. Persons Contacted

#### Licensee Employees

W. R. Cartwright, Station Manager  
\*E. W. Harrell, Assistant Station Manager  
J. Hanson, Superintendent - Technical Services  
J. R. Harper, Superintendent - Maintenance  
\*S. L. Harvey, Superintendent - Operations  
J. M. Mosticone, Operations Coordinator  
\*J. P. Smith, Engineering Supervisor  
\*J. W. Ogren, Supervisor, Administrative Services  
R. A. Bergquist, Instrument Supervisor  
\*M. A. Harrison, Resident QC Engineer  
D. B. Roth, Engineering Supervisor  
A. L. Hagg, Nuclear Training Supervisor

Other licensee employees contacted included three technicians, five operators, and several office personnel.

\*Attended one or more exit interviews

### 2. Exit Interview

The inspection scope and findings were summarized on May 1 and 7, 1981 with those persons indicated in Paragraph 1 above. The violation discussed in paragraphs 7a and b was discussed at the exit on May 7 and met strong objections from station management. Station management felt ANSI N18.1-1971 requirements are met with the step development program and the "Special Training" unlicensed operators receive from shift personnel. Subsequently, Region II Supervision discussed this item with plant and corporate management. It was indicated that a training program for the area in question could be formalized.

### 3. Licensee Action on Previous Inspection Findings

Not inspected.

### 4. Unresolved Items

Unresolved items were not identified during this inspection.

### 5. Unit 1

During this reporting period, Unit 1 was returned to service following the second refueling outage on April 6, 1981. The Unit was escalated to capacity load following a brief shutdown to reverify testing on a safety valve as identified by the licensee.

a. Order to Modify License NPF-4

An Order to Modify License NPF-4 (Unit 1) was issued April 20, 1981 requiring six check valves in the safety injection cold leg lines be leak checked within 30 days, if they had not been satisfactorily leak checked within the previous twelve months.

The licensee conducted leakage testing on these valves prior to recovering from the refueling outage on March 29, 1981, with satisfactory results (less than 1 gpm leakage) for each of the six check valves identified. At the close of this inspection period the licensee had not yet promulgated the surveillance procedure, 1-PT-61.4, for scheduling conduct of this test periodically in the future. Promulgation and scheduling of 1-PT-61.4 will be followed up (338/81-13-01).

b. Auxiliary Feedwater Pump (AFW) 3B Flow Verification

The licensee in LER 80-61 reported the potential for AFW pump 3B not to meet the minimum flow requirement of 340 gpm in certain accident conditions. The licensee conducted three special tests, 1-ST-31, 1-ST-35, and 1-ST-39 since then and again on April 4, 1981 analyzed the test data to calculate flow to the "B" steam generator with steam generator pressure at 103% of minimum safety valve setting (worst case conditions). The inspector verified the test results and the calculations and concurred that AFW pump 3B would deliver required flow. Item (338/80-30-06) is closed.

6. Unit 2

During this reporting period Unit 2 was operated at capacity load with several power reductions for maintenance and/or load follow.

a. Heat Balance Power Calculation

On May 1, 1981 the licensee's engineering staff completed a study which demonstrated that the steam generator feedwater flow venturis were fouling, causing flow indication to be higher than actual flow. A similar occurrence was reported for Unit 1 in LER 80-63 and discussed in IE Report 338/80-30, paragraph 20b. As a result, the licensee lowered the steam flow/feedwater flow mismatch setpoint by 5% and changed the calorimetric procedure, 2-PT-24 to utilize steam flow in determining heat balance power. At the same time as this change, the licensee also changed the value for reactor coolant pump heat addition in both Units 1 and 2 calorimetric procedures from  $36.8 \times 10^6$  Btu/hr to  $34 \times 10^6$  Btu/hr (more conservative), to conform with the Westinghouse analysis values identified in Westinghouse letter VPU(JBC)-72 of January 21, 1981. This same letter identified that for 7000 HP reactor coolant pumps, as installed at North Anna, a value of  $40.8 \times 10^6$  Btu/hr reactor coolant pump heat could be used, since it is empirically correct. However, since NSSS safety analysis were based on these lower figures, a reanalysis of the accident studies would be required prior

to using the  $40.8 \times E 6$  value in the calorimetric and resetting nuclear instrumentation.

On May 1, 1981 the new procedure was used to reset nuclear instrumentation which indicated 95.4% power was being produced at the nuclear instrumentation setting of 100%. The ensuing nuclear instrument adjustment resulted in increasing gross generator electrical output from 904 MWe to 939 MWe (rated output is 947 MWe). The inspector reviewed the calculations instrument settings, and procedures and had no further questions in this area. A previously identified item (338/80-30-07) for Unit 1 is also closed based on review of the procedures and engineering study results involved.

b. Amendment 7 to License NPF-7

Amendment 7 to License NPF-7 was issued April 29, 1981 allowing the licensee until May 31, 1981 to conduct the battery test discharge surveillances of Technical Specifications 4.8.2.3.2.d and 4.8.2.4.2. Conduct of these tests before May 31, 1981 will be followed up (339/81-10-01).

c. Westinghouse Valve Modifications

As discussed in ICR Report 339/81-07 paragraph 6a, two motor operated valves were identified which might not fully close under high differential pressure conditions. Followup review by the licensee identified a third valve, MOV-2289B which is a model 3GM99 style valve, which also demonstrated this deficiency in independent lab studies. Modification of this valve is planned for the May 8, 1981 outage and will be followed up with the other 2 valves (MOV-2536 and MOV-2373) (339/81-07-03).

7. Both Units/Site

a. Auxiliary Operator Training and Certification

The licensee's unlicensed operators are trained on plant operation using a seven step development program. The VEPCO Development Program and Policy Manual defines the basic requirements for this program which is augmented by some system specific qualification cards for use at this site. Upon completion of all seven steps (allotted time 39 months) an individual will have been checked out and examined on the systems and administrative procedures used in the plant by operations personnel. The program appears viable and effective in developing new hires through to experienced, unlicensed operators. Upon completion of step 7, however, the individuals are entered directly into licensed operator training. The program is utilized while an individual serves in the capacity of auxiliary operator. Those persons who are in steps 0 through 3 serve as Control Room Operator Trainees, (CRO-T) and those in steps 4 through 7 as Control Room Operators, Unlicensed (CRO-U). Nowhere in the development program is the position "Auxiliary Operator"

used, but plant management identified the CRO-Ts as serving this position while the CRO-U's assist the licensed control room operators in the control room.

In discussing the inspector's concern over the level of knowledge the CRO-Ts have to conduct unsupervised operations in the plant, control room supervisors identified an unofficial on-shift training program in which an inexperienced CRO-T is observed conducting various functions prior to allowing him to conduct these functions alone. None of this is documented. The licensee's position is that the licensed shift personnel are aware of the capabilities of their unlicensed people and take "appropriate actions" to insure he is either experienced in a task or is thoroughly instructed before doing the task.

Although this program allows extensive shift flexibility, it burdens the on-shift supervisors with the responsibility for actions of inexperienced and untrained staff to function outside the control room. To compensate, two extra requirements have been placed on the operations by unlicensed operators:

- 1) A separate qualification card must be completed before an unlicensed operator is allowed to perform switching operations in the main switchyard.
- (2) Standing Order 71 requires two unlicensed operators, if below step 3, to operate any 480V or 4160V breakers.

These requirements indicate management's acceptance of the relatively low knowledge levels held by these unlicensed operators, but fall short of assuring that these persons filling the requirements of the Auxiliary Operator have the knowledge and proficiency to perform their functions safely.

Management was informed that the training and proficiency standards required of those persons serving as Auxiliary Operators do not meet the requirements of Technical Specification 6.4, which requires replacement training as defined in ANSI 18.1-1971 Section 5.5. This is a violation (338/81-13-02 and 339/81-10-02).

b. Engineering Staff Training

As discussed in IE Report 338/80-26 and 339/80-31, this inspector noted the lack of any retraining or replacement training program for the engineering staff. Since that time there has been some discussion of the possibility of having the engineers go through the formal STA training program, which is scheduled to start later this summer.

The inspector discussed this matter with plant supervision and related the intent of ANSI N18.1-1971 section 5.5 to provide training programs to the various disciplines in the plant staff which provides the personnel with the knowledge and proficiency to function in their

assigned duties efficiently and safely. Since a program to meet this intent still does not exist for the engineering staff, this is considered a second example of the violation identified above in paragraph 7a (338/81-13-02 and 339/81-10-02).

- c. 10 CFR 50.48 and 10 CFR 50 Appendix R were issued on November 19, 1981 as new requirements for operating nuclear plants who were licensed prior to January 1, 1979. These regulations concerned fire protection systems and identified three areas which required upgrading, and promulgated a schedule by which these improvements were to be made.

10 CFR 50.48(c)(5) requires all affected licensees to submit reports on 1) a design description of the modifications to be conducted to meet 10 CFR 50 Appendix R section III G, and 2) plans and schedules of the work to be done to meet the schedules required by 10 CFR 50.48(c)(2), (c)(3), and (c)(4) for complying with Appendix R.

Licensee letter, serial number 1009 dated December 23, 1980 responded to these new requirements and identified the requirements of Appendix R section III J, as the only area requiring further work to be in complete compliance with Appendix R. No schedule or scope of this work was indicated.

Since that time the NRC notified the licensee on April 7, 1981 that Unit 2, which was licensed after January 1, 1979, was also required to meet the requirements of 10 CFR 50.48 and Appendix R.

The inspector discussed these issues with licensee management and was given the commitment that a supplement to the December 23 letter would be submitted to acknowledge the requirements for Unit 2 and provide more detail and scheduling for the work to be completed to meet the fire protection requirements. This will be followed up (338/81-13-03 and 339/81-10-03).

- d. Licensed Operator Issues

- (1) On April 30, 1981 the licensee identified the fact that one of the on-shift senior reactor operator's license had expired earlier in the month. The case was unique in that the individual had undergone a complete licensing examination to operate Unit 2, in 1980, but the resulting license to operate both units was not renewed.

The operator was removed from the operating shift and processing to renew his license was initiated on an expedited basis. At the close of this reporting period the new license had not yet been issued and the individual was performing functions to aid the shift, but not directly involved in plant operation or maintenance. Reissuance of his license shall be followed up (338/81-13-04 and 339/81-10-04).

- (2) On May 2, another licensed operator injured his heel and was unable to report for work. At the close of this reporting period this individual was still off work, however his return to duty, medical evaluation, and the licensees report per 10 CFR 55.41 shall be followed up (338/81-13-05 and 339/81-10-05).

In this same regard, previously opened item (338/80-38-11) was partially closed by submittal, on March 24, 1981 of a report of operator disability regarding an operators potential disability in October, 1980. This item remains open pending review of the licensees program to evaluate and report licensed operator disability.