UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report Nos. 50-338/80-29 and 50-339/80-28

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

Inspectors: _____ 8/20/80
E. H. Webster, Resident Inspector — Date Signed

_____ 8/20/80
A. P. Tatersall, Resident Inspector — Date Signed

Approved by: _____ 8/20/80
P. J. Kellogg, Section Chief, RONS Branch — Date Signed

SUMMARY

Inspection on June 2 - July 11, 1980

Unit 1 Areas Inspected

This routine inspection by the resident inspectors involved 41 hours onsite in the areas of facility operations, adherence to Technical Specifications, fire equipment and housekeeping.

Unit 1 Findings

Of the four areas inspected, no items of noncompliance or deviations were identified in three areas; one apparent item of noncompliance was found in one area; (Infraction: Failure to comply with Technical Specifications - Paragraph 10.c.

Unit 2 Areas Inspected

This routine inspection by the resident inspectors involved 110 hours on site in the areas of previously identified open items, licensee event reports, items

requiring resolution prior to exceeding zero items requiring resolution prior to issuance of a full power license and conduct of initial criticality, zero power and low power testing.

Unit 2 Findings

Of the seven areas inspected, no items of noncompliance or deviations were identified in six areas; two items of noncompliance were identified in one area (Infraction - Failure to establish a program - paragraph 12.a; Infraction - Failure to comply with Technical Specifications - paragraph 12.a).

DETAILS

1. Persons Contacted

Licensee Employees

* W. R. Cartwright, Station Manager
E. W. Harrell, Assistant Station Manager
S. L. Harvey, Superintendent - Operations
D. L. Benson, Superintendent - Technical Services
R. A. Bergquist, Instrument Supervisor
G. A. Kann, Engineering Services Supervisor
D. M. Hopper, Health Physics Supervisor
J. R. Harper, Superintendent-Maintenance

Other licensee employees contacted included two technicians, four operators, and three office personnel.

2. Exit Interview

The inspection scope and findings were summarized on June 13 and June 27 for those persons indicated in Paragraph 1 above. The apparent infractions described in paragraphs 10c and 12a were discussed in detail on June 13 and 27, 1980. The inspectors comments were acknowledged.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this isnepction.

5. Unit 2 Status

During this inspection period Unit 2 received authorization from the NRC on June 12 to proceed to mode 2 and conduct zero power physics tests. Initial criticality was achieved at 9.48 p.m. on June 12 and zero power testing ensured until June 22, when the unit was shutdown for maintenance and modifications. On July 3, Amendment 1 to the Unit 2 operating license, NPF-7 authorized conduct of the low power test program and exempted certain Technical Specifications so that the four natural circulation tests could be conducted. The natural circulation tests were performed over the period July 3 to July 9, 1980. At the end of that period, all tests had been run at least once and all operators except those on vacation had been involved in at least one test and observed two other tests. The following paragraphs specify the resident inspectors review of these events.

6. Initial Criticality

Portions of the approach to criticality conducted per procedure SU-17, "Initial Criticality" were observed on June 12 and 13, 1980. The following areas were inspected during this evolution:

a. Conformance to Technical Specification requirements and license conditions.

b. Nuclear Instrumentation Cailbration. ICP-NI-2-N31 completed 3/31/80, ICP-NI-2-N32 completed 3/31/80, ICP-NI-2-N35 completed 2/12/79 and ICP-NI-2-N36 completed 4/2/79 were reviewed in detail. One error was noted in ICP-NI-2-N31 therefore, that portion of the procedure was rerun to verify correction of the recorded data.

c. Conformance to administrative and procedural requirements including prerequisites and initial conditions and changes to the procedure.

Source range response was as predicted and control rod positions and boron concentrations were in close agreement with predicted values. The inspector had no significant comments relative to the approach to criticali .

IE Report 50-339/80-25 also discusses initial criticality and also concluded that the test was performed satisfactorily.

7. Zero Power Testing

During the conduct of the Zero Power Physics Testing Program portions of 2-SU-18, "Nuclear Design Check Test"; 2-SU-19, "Rod and Boron Worth Measurements during Dilution"; 2-SU-20, "Rod and Boron Worth Measurements during Boron Addition"; 2-SU-31, "Nuclear and Temperature Instrument Calibration and Thermal Power Measurements"; 2-SU-47, "Integral Rod Worth Measurements using Rod Swap Techniques"; and 2-SU-7, "Incore Moveable Detectors" were observed. Some of the following areas were witnessed for each of the tests observed:

a. Compliance with procedural requirements.
b. Minimum shift manning requirements.
c. Conformance of preliminary results to acceptance criteria.
d. Adherence to Technical Specification requirements and special requirements for Low Power Physics Testing.

During this period of observation the inspector had no significant comments.

8. Section 7 of Technical Specifications Concerning Items Prior to Exceeding Zero Power

Item (1) Resolution of the Westinghouse LOCA-ECCS evaluation model was closed in IE Report 50-339/80-20.

Item (2) Completion of Westinghouse review of low power test procedures. (TMI action plan requirement I.C.7(b)). (339/80-17-04).

Westinghouse letter NAW-3580 dated June 6, 1980 documented the review of the special Natural Circulation tests and included the comments on the procedures. This letter and 2-ST-6, "Cooldown Capability of CVCS"; 2-ST-8, "Natural Circulation Verification"; 2-ST-9, "Natural Circulation with Loss of Power"; and 2-ST-11, "Steam Generator Isolation in Natural Circulation" were reviewed.

The inspector had no questions in this area and this item is considered closed.

Item (3) Development of a training plan for shift personnel during conduct of low power tests (TMI action plan requirement I.G). (339/80-17-05).

VEPCO letter serial no. 559, dated June 24, 1980, provided the training plan committed to by VEPCO whereby each licensed operator and senior operator would participate in 2-ST-9, "Natural Circulation with Loss of power" and observation of two other tests. This committment is in conformance with the committment referenced in section I.G of the Safety Evaluation Report for North Anna Power Station Unit 2, Supplement No. 10 (NUREG 0053 Supplement 10) and therefore, this item is considered closed.

9. Low Power Testing

On July 3, 1980 Amendment No. 1 to facility license NPF-7 was issued authorizing North Anna Power Station Unit 2 to operate at power levels less than 5% of rated thermal power. Shortly thereafter the Low Power Test Program was started.

In preparation for observing this series of special tests, Amendment 1 to NPF-7 and the Special Test Procedures were reviewed in detail. One error in Table 6.1 Exception to Technical Specification Exceptions for Low Power Test Program was noted and NRR was notified. A corrected copy of this table was then issued. Comments on the Special Test Procedures were discussed with Station Management and incorporated as necessary.

The Low Power Test Program consisted of five Special Tests: 2-ST-6, "Cooldown Capability of the CVCS"; 2-ST-7, "Core Power Monitoring and Nuclear Instrumentation Calibration"; 2-ST-8, "Natural Circulation Verification"; 2-ST-9, "Natural Circulation with Simulated Loss of Power Conditions" and 2-ST-11, "Effect of Steam Generator Secondary Side Isolation on Natural Circulation". The initial conduct of each of these tests were observed in their entirety. Subsequently portions of each test were observed as the test were conducted by different shift personnel. The following is a list of the areas observed during the conduct of this test program:

a. Procedural compliance

b. Minimum crew manning

c. Compliance with test prerequisites and initial conditons

d. Calibration of special test equipment

e. Crew actions during performance of the test

f. Adherence to acceptance criteria

In addition, the installation of the protection system bypasses as authorized by Amendment 1 to NPF-7 and the conduct and results of 2-PT-36.10 "Train A" and 2-PT-36.10 "Train B" to verify these changes were observed. During the conduct of 2-PT-36.10 "Train A" the inspector observed that it appeared necessary to change the procedure in order to ensure all possible results of the testing are recorded. This item will be re-inspected at a later date, (80-28-08).

10. Review of Plant Operation - Unit 1

a. The inspector toured the facility during operation in conjunction with other inspection activites. The following items were observed:

1. Fire equipment - proper storage and evidence of periodic inspections to insure operability of equipment.

2. Housekeeping - minimial accumulation of debris and maintenance of required cleanliness levels in systems following maintenance. Observations regarding certain areas were given to Stations Management who acknowledged the inspectors comments.

3. Component tagging - two components tagged out of service for maintenance or testing were checked to assure proper positioning of switches and valves. Administration involved in these tagouts was properly completed.

4. Remote indicators - several components were verified to be in proper lineups including valves under administrative controls, remote panel switches and breakers.

b. The inspector observed two shift turnovers during backshift operation. Discussions between oncoming and offgoing personnel, log reviews and use of the shift turnovers forms per Procedure ADM 29.3 appeared adequate.

c. At about 1300 on June 12, 1980, while reviewing 1-LOG-4, "Control Room Operators Surveillance Sheets" the inspector noted that the readings taken at 1000 indicated that one of the level channels for Steam Generator "A" was greater than 5% from the other two channels. At this time the recorded levels were LT-1474 (52%), LT-1475 (44%), LT-1476 (44%). The ±5% is the indicated acceptance criteria on 1-LOG-4.

When this information was given to the Operations Superintendent, he indicated that the 5% was a difference from the average of all three channels and that the level channel therefore, appeared to be within the acceptance criteria. Following this discussion the inspector calculated the average, 46.6% which showed the channel not to be within the acceptance criteria. Following further discussions with the Operating Superintendent at about 1600 the channel was declared out of service and the appropriate channel bistables placed in the tripped condition as required by Technical Specification 3.3.1.1. However the bistables were not tripped within one hour for the channel being out of service as indicated on 1-LOG-4 at 1000 and as required by note 7 on Table 3.3-1. This is an infraction (80-29-01).

11. LHSI Discharge Lines not Analyzed for Temperatures Below 70°F (339/80-17-10)

This problem, initially reported as per Unit 1 Technical Specifications and 10 CFR 50.55(e) for Unit 2, was last discussed in IE Report 50-339/80-20. As was noted in that report, reanalysis of pump nozzle loads resulted in the identification of several required modifications to preclude excessive support stresses. These points and changes required for Unit 2 were enumerated in Unit 2 LER 80-10. Support modifications and additions were implemented via Engineering and Design Coordination Reports (E&DCR) PS-5321-2, revisions D, E, F, and Unit 2 design change 80-09. The inspector observed the modifications as they were completed on June 9 and 10, 1980 and compared them to the applicable sketches attached to the E&DCR's. One significant finding resulted, involving support SI-SH-36 on 10-inch line SI-425-153A-QA. This spring can support, used as a verical support underneath the line, was found to be sitting on a large baseplate without any lateral anchor, (i.e., such as bolts or welds), to prevent the support from silding on the baseplate. After discussions, E&DCR PS-5321-2, Revision E was issued to provide tack welds on all four sides of the spring base. This was accomplished on June 10, 1980. Other modifications were compared to as-built sketches contained in PS-5321-2 C,D,and F, with no discrepancies being noted.

These modifications were required because the acceptable pump nozzle load values were lowered by the pump vendor, Ingersall-Rand. Unit 2 LER 80-10, dated June 5, 1980, did not discuss this change. Station Management agreed that the LER, along with the Unit 1 LER, should be supplemented to discuss the changes made by Ingersall-Rand. This item is designated as open item (80-29-02) and (80-28-01).

12. License Event Reports

The following events or problems were reported as prompt (24 hour) LER's per the applicable units Technical Specification during this report period:

a. Feedwater Flow Transmitter Isolation (LER 80-24), Unit 2

On June 19, 1980, VEPCO reported that while conducting physics testing in Mode 2, five (5) of the six (6) main feedwater flow transmitters were found isolated and inoperable. Subsequently the transmitters

were returned to service and their operability demonstrated by the conduct of their respective Instrument Calibration Procedures. This report will be reviewed further and is designated as open item (80-28-02).

License NPF-7, Technical Specification Section 6.8.1.a requires that procedures be developed, implemented and maintained covering activities referenced in Appendix A to Regulatory Guide 1.33, Revision 2, dated February 1978. Contrary to this requirement 2-OP-1A, "Pre Startup Checkoff List", made no prevision for verifying that instrumentation in the feedwater system required for reactor protection was in service prior to entering the mode of operation where it would be required. This item is identifies as Infraction 80-28-03.

In addition Technical Specification 3.3.1.1, Table 3.3-1, Action Note 7 requires that if one of the feedwater flow channels is inoperable that it be placed in the tripped condition within one hour. Also, Technical Specification 3.0.3, requires that if an event occurs which requires operation in a condition less conservative than the Limiting Condition for Operation or the applicable Action Statement that the unit be placed in Mode 3 within one hour and Mode 4 with in the next six (6) hours. Contrary to both these requirements North Anna Power Station Unit 2 was operated in Mode 2 until the transmitters were returned to service. This item is identified as infraction (80-28-04).

b. PORV Malfunction (LER 80- 29), Unit 2

On June 24, 1980, while in Mode 3, PCV-2456 opened inadvertently and failed to shut while the PORV block valve was being opened. Pressure relief was minimized by shutting the PORV block valve. This item will be reviewed further and is designated as open item (80-28-05).

c. Pressure Transmitters Malfunction (LER 80-31), Unit 2

On June 26, 1980, while in Mode 3, is was found that the three (3) Pressurizer Pressure Protection Channels I, II, and III indicated values below actual RCS pressure. The cause appeared to have been due to a "pressure set" in the bourden tube detector. Evaluation of this occurrence is in progress and this report will be reviewed further at a later date. This item is designated as open item (80-28-06).

d. Nonconservatism in Dilution Accident Analysis (LER 80-55), Unit 1

During a review of the Unit 1 FSAR Safety Analysis it was determined that non conservative RCS volumes were used for the Cold Shutdown condition, in that the RCS may be drained to the centerline of the hot leg, while the analysis assumed the RCS to be full. Final evaluation is not complete at this time. This item is also applicable to Unit 2. This item will reviewed further and is designated as open item (80-29-03) and (80-28-07).