



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA ST., N.W.  
ATLANTA, GEORGIA 30323

MAY 09 1988

Report Nos.: 50-338/88-09 and 50-339/88-09

Licensee: Virginia Electric and Power Company  
Richmond, VA 23261

Docket Nos.: 50-338 and 50-339

License Nos.: NPF-4 and NPF-7

Facility Name: North Anna 1 and 2

Inspection Conducted: April 18-22, 1988

Inspector:

*John B. Kahle*  
for R. R. Marston

*5/5/88*  
Date Signed

Approved by:

*John B. Kahle*  
J. B. Kahle, Section Chief  
Division of Radiation Safety and Safeguards

*5/5/88*  
Date Signed

SUMMARY

Scope: This routine, unannounced inspection was conducted in the area of radiological effluents and radiological environmental monitoring.

Results: No violations or deviations were identified.

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- W. Barnes, III, Assistant Supervisor, Health Physics
- E. Dreyer, Supervisor Health Physics - Technical Services
- \*R. Enfinger, Assistant Station Manager (Operations & Maintenance)
- \*S. Hamill, Supervisor, ISI Engineering
- \*L. Hartz, Instruments Supervisor
- \*D. Heacock, Superintendent of Technical Services
- \*J. Leberstien, Engineer
- M. Marino, Assistant Instrument Supervisor - Unit 2
- \*D. Roth, Nuclear Safety & Licensing Engineer
- \*E. Schnell, Corporate Health Physicist
- \*A. Stafford, Superintendent Health Physics
- \*G. Swann, Senior Engineering Technician
- C. Swope, Staff Quality Specialist, Programs
- \*F. Terminella, Supervisor - Quality

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

#### NRC Resident Inspector

L. King

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on April 22, 1988, with those persons indicated in Paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings. No dissenting comments were received from the licensee. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

### 3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

### 4. Audit (80721, 84723, 84724)

Technical Specification 6.5.3.1 requires that the Quality Assurance (QA) Department audit station activities to include:

- The conformance of facility operation to provisions contained within the Technical Specifications and applicable licensee conditions at least once per 12 months;
- The radiological environmental monitoring program and the results thereof at least once per 12 months;
- The Offsite Dose Calculation Manual (ODCM) and implementing procedures at least once per 24 months;
- The Process Control Program and implementing procedures for processing and packaging of radioactive wastes at least once per 24 months; and
- The performance of activities required by the Quality Assurance Program to meet the provisions of Regulatory Guide 1.21, Revision 1, June 1974, and Regulatory Guide 4.1, Revision 1, April 1975, at least once per 12 months

The inspector discussed the audit program with licensee representatives and reviewed the following audits conducted by the QA Department:

- N-87-04, Health Physics Dose Control and Administration, August 15, 1987, this audit included Radiation Monitor Alarm/Trip setpoints and calibration of count room equipment;
- N-87-05, Radiological Environmental Monitoring, conducted April 14 - July 2, 1987. This audit included a finding on calibration and maintenance of air sampler kits, which was subsequently closed;
- N-87-12, Process Control Program, conducted July 20 - October 21, 1987; and
- N-87-15, Offsite Dose Calculation Manual, conducted August 31 - November 13, 1987.

The audits appeared to be thorough and comprehensive, and response, followup, and closeout were conducted in a timely manner.

No violations or deviations were identified.

#### 5. Procedures (80721, 84723, 84724)

Technical Specification 6.8.1 requires that written procedures be established, implemented and maintained covering in part the activities referenced below:

- The applicable procedure recommended is Appendix "A" of Regulatory Guide 1.33, Revision 2, February 1978;
- Process Control Program implementation;

- ODCM implementation; and
- Quality Assurance Program for effluent and environmental monitoring, using the guidance in Regulatory Guide 1.21, Revision 1, June 1974, and Regulatory Guide 4.1, Revision 1, April 1975.

The inspector selectively reviewed Health Physics Procedures in the following areas:

- HP-REMM. The ten procedures in this group constitute the REM Manual which defines the Radiological Environmental Monitoring Program
- HP-ODCM. These fourteen procedures plus Appendices constitute the ODCM.
- Health Physics Procedures covering calibration, operation, and performance checks of count room equipment; liquid and gaseous radwaste sampling and analysis; radwaste release, release records, and dose assessment; effluent monitor setpoints; and accidental, unplanned or uncontrolled radwaste release. The inspector also selectively reviewed Instrument Calibration Procedures specified for effluent monitor calibration and functional checks and meteorological instrumentation calibration and functional checks.

The inspector determined through selective reviews of the procedures and discussions with licensee representatives that the requirements of the Technical Specifications appeared to have been met. Licensee representatives stated the corporate Health Physics was rewriting performance and calibration procedures to ensure conformity with the Radiation Protection Plan.

No violations or deviations were identified.

#### 6. Radioactive Effluent Monitoring Instrumentation (84723, 84724)

Technical Specifications 3.3.3.10 (Unit 1) and 3.3.3.9 (Unit 2) require radioactive liquid and gaseous effluent monitoring instrumentation channels to be operable with their alarm/trip setpoints set in accordance with the ODCM. Technical Specification Tables 4.3-13 (Unit 1) and 4.3-12 (Unit 2) establish frequencies for channel checks, source checks, channel calibrations, and channel functional tests for radioactive liquid effluent monitoring instrumentation, and Tables 3.3-14 (Unit 1) and 3.3-13 (Unit 2) established frequencies for channel checks, source checks, channel calibrations, and channel functional tests for radioactive gaseous effluent monitoring instrumentation.

The inspector selectively reviewed calibration and channel check records for liquid and gaseous effluent radiation monitoring systems. Calibrations and checks appeared to have been done at intervals required by Technical Specifications and procedures. The inspector noted several

liquid and gaseous effluent monitors during a tour of the plant. The monitoring systems appeared to be properly installed and maintained.

No violations or deviations were identified.

7. Count Room Instrumentation (84723, 84734)

The inspector toured the count room, discussed the equipment and procedures with licensee representative and examined calibration and functional check records for the instruments.

The counting room is equipped with three HPGe Ortec detector systems with Nuclear Data MCA 6700 analysis and display, one Beckman LS-100C Liquid Scintillation system, and two PC-5 NMC Proportional counters. Licensee representatives stated that an additional gamma spectroscopy system and a PC-4 proportional counter were maintained in the Plant Training Center. The inspector reviewed the records for the count room instruments and verified that calibrations and functional checks appeared to have been done at frequencies specified in appropriate procedures.

No violations or deviations were identified.

8. Radioactive Liquid Waste (84723)

Technical Specification 3/4.11.1 establishes upper limits for concentrations of radioactive material in liquid effluents. The inspector selectively reviewed release records for the period June 1987 to April 1988; which included release reports, abnormal release reports, dose assessment records, and dose projections. All releases reviewed were within Technical Specification limits.

No violations or deviations were identified.

9. Radioactive Gaseous Waste (84724)

Technical Specification 3/4.11.2 establishes upper limits for concentration of radioactive material in gaseous effluents. The inspector selectively reviewed release records for the period from June 1987; to April 1988; which included release reports, abnormal release reports, dose assessment records, and dose projections. All releases reviewed were within Technical Specification limits.

No violations or deviations were identified.

10. Radiological Environmental Monitoring (80721)

- a. Technical Specification 3.12.1 requires the radiological environmental monitoring program to be conducted as specified in Table 4.12.1. The Table specifies:

- Exposure Pathway and/or Sample;
- Number of Samples and Sample Locations;
- Sampling and Collection Frequency; and
- Type and frequency of Analysis

The licensee implements the Technical Specification requirements through the REM Manual and the ODCM.

The inspector and a licensee representative visited five environmental sampling sites where collocated NRC and licensee thermoluminescent dosimeters (TLDs) were located. Licensee air samplers were located at three of the stations and State TLDs were collocated at two of the stations.

Licensee representatives stated that all environmental samples were shipped to a contractor for analysis. The inspector selectively reviewed environmental analysis reports for the period from July 1986 through January 12, 1988. The inspector noted that the contractor listed those samples not taken due to nonavailability. The inspector determined that sampling and analyses appeared to have been done at the required frequencies, and that no results exceeded the Action Levels specified in Technical Specification Table 4.12-2.

- b. Technical Specifications 3/4.12.2 requires a land use census to be conducted during the growing season at least once per 12 months. The inspector reviewed the results of the census conducted in July 28-30, 1987. The census provided the data specified in the Technical Specification.
- c. Technical Specification 3/4.3.3.4 requires that the meteorological monitoring instrumentation channels shown in Technical Specification Table 3.3-8 be operable, and that each of these channels be demonstrated operable by performance of the channel checks and channel calibration at the frequencies shown in Technical Specification Table 4.3-5.

The inspector reviewed calibration records for the primary and backup meteorological systems which showed that the systems were calibrated in April 1988.

No violations or deviations were identified.

#### 11. Collocated TLDs (25022)

The inspector verified the location of collocated NRC and licensee TLDs and collected the data required by the Temporary Instruction.

No violations or deviations were identified.

## 12. Environmental Reports (80721)

- a. Technical Specification 6.9.1.8 requires the submittal of an annual Radiological Environmental Surveillance Report. The inspector reviewed the report for calendar year 1986. Generally, the results were as expected with no trends noted. Naturally occurring activity was observed in sample media in the expected activity ranges. Fission-related isotopes resulting from the Chernobyl accident were detected in the vicinity of the plant from early May through June. At other times, occasional samples showed the presence of man-made isotopes, which were discussed in appropriate parts of the report. These activities were at very low concentrations and had no significant dose consequence.

No violations or deviations were identified.

## 13. Followup of Significant Events (93701)

During the period of December 1-5, 1986, a control room habitability survey was conducted at North Anna Units 1 and 2 by members of NRC (NRR and Region II) and NRC consultants. During this evaluation, flow tests were conducted on the control room emergency ventilation system. The flow tests showed that all four subsystems had flow rates in excess of the flow rates specified in Technical Specification 3.7.7. The NRC determined that these high flow rates could result in control room personnel receiving doses greater than 5 Rem during an accident due to shorter iodine residence times in the charcoal adsorber beds. As a result of this finding, the licensee issued Licensee Event Report (LER) 86-019-00. According to the LER, the cause of the incident was inadequate post maintenance testing after filter (demister) cleaning. No cleaning procedure existed to ensure post maintenance testing.

The inspector verified that procedures had been issued (PM-M-10-FL/R-3 and PM-M-20-FL/R-3) which provided for cleaning the demisters and performing Periodic Tests (1-PT-76.12A, 1-PT-76.12B, 2-PT-76.12A, and 2-PT-76.12B) to perform post maintenance testing on the control room emergency ventilation system.

(Closed) LER 86-019-00.