



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

October 4, 1982

Report Nos. 50-280/82-25 and 50-281/82-25

Licensee: Virginia Electric and Power Company
 Richmond, VA 23261

Facility Name: Surry

Docket Nos. 50-280 and 50-281

License Nos. DPR-32 and DPR-37

Inspection at Surry facility site near Surry, Virginia

Inspector: *K. P. Barr* 9/30/82
J. C. M. Hosey Date Signed

Approved by: *K. P. Barr* 9/30/82
 K. P. Barr, Section Chief Date Signed
 Technical Inspection Branch
 Division of Engineering and Technical Programs

SUMMARY

Inspection on August 30 - September 3, 1982

Areas Inspected

This routine, unannounced inspection involved 38 inspector-hours on site in the areas of the radiation protection program, followup on IE Circulars, Bulletins, and Notices, followup on previous enforcement matters and unresolved items, followup on previous inspector identified items, and followup on an unplanned release of gaseous radioactivity.

Results

In the areas inspected, no violations or deviations were identified.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *J. L. Wilson, Station Manager
- *R. F. Saunders, Assistant Station Manager
- *D. A. Christian, Superintendent Technical Services
- *S. P. Sarver, Health Physics Supervisor
- *R. F. Driscoll, Quality Assurance Manager
- *F. L. Rentz, Quality Control Supervisor
- O. J. Costello, Staff Assistant
- P. Nottingham, Assistant Health Physics Supervisor
- M. Beckham, Assistant Health Physics Supervisor
- B. Garber, Assistant Health Physics Supervisor
- O. Vogtsberger, Nuclear Training

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

NRC Resident Inspectors

- *D. J. Burke, Senior Resident Inspector
- *M. J. Davis, Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on September 3, 1982, with those persons indicated in paragraph 1 above. The inspector informed the Plant Manager that exceeding the Technical Specification limit for gaseous releases on August 26, 1982, would be considered a violation of NRC requirements. However, since the release resulted from an equipment failure that was not avoidable by reasonable licensee quality assurance measures or management controls, no enforcement action would be taken by the NRC in accordance with Appendix C of the Enforcement Policy (10 CFR 2). The Plant Manager acknowledged the inspector's comments and stated that the licensee was considering asking for a temporary change to the Technical Specifications to obtain relief from the very conservative limit. The inspector also discussed general housekeeping in the auxiliary building and the storage of radioactive material in outside areas of the plant. The inspector stated that, over the last year, the efforts of the licensee to reduce the number and extent of radioactivity contaminated areas within the auxiliary building and the number of radioactive material storage areas outside have not been very effective. Plant employees were observed working on a nonradioactive system wearing protective clothing in areas that could have been easily decontaminated. Plant management disagreed with the inspector's comments

concerning cleanliness of the plant. The Plant Manager agreed to review this area.

3. Licensee Action on Previous Enforcement Matters

- a. (Closed) Unresolved (280/281/78-27-02). ALARA Considerations of Resin Systems. The inspector reviewed the procedures for preparing and loading clean resin into the demineralizers and observed the operations in the decon building. No violations or deviations were identified.
- b. (Closed) Infraction (280/79-70-01). Failure to Continuously Monitor and Record Liquid Waste Releases (inoperable radiation monitor). The inspector reviewed the licensee's corrective action and had no further questions.
- c. (Closed) Infraction (280/79-70-02). Failure to Follow Procedures. The inspector reviewed the licensee's corrective actions and had no further questions.
- d. (Closed) Infraction (280/79-70-03). Failure to Sample Contaminated Drain Tank Prior to Release. The inspector reviewed the licensee's corrective actions and had no further questions.
- e. (Closed) Infraction (280/79-70-04). Failure to Evaluate Releases From the Turbine Building Floor Drains. The inspector reviewed the licensee's corrective actions. The licensee is completing a series of design changes to upgrade the monitoring of liquid effluents from the plant. This item is closed for records purposes. Completion of the Design Changes will be followed under inspector followup item 280/80-29-27.
- f. (Closed) Infraction (280/80-29-23; 281/80-33-23) Operation of An Engineered Safety System Beyond Its Design. The inspector reviewed the licensee's corrective actions concerning the replacement of filters in category 1 (covered by Technical Specifications) at a preset differential pressure across the filter bank and had no further questions. During tours of the plant the inspector noticed that the differential pressure across the prefilters in filter unit FL-14 was pegged on the high side (greater than six inches). This condition had existed since an inspection made by the inspector in June 1982. The inspector stated that although this was not a filter system required by Technical Specifications, the differential pressure should be periodically checked as appropriate. A licensee representative stated that the filter system had been turned over to construction for maintenance during the steam generator replacement project and that maintenance of the system was never picked up by the plant after this project. At the time of the exit interview the licensee had located new prefilters on site and was making preparations to change out the filters. Plant management stated that they were not sure if the Filter Unit FL-14 was included in the program for changing filters, if the differential pressure (dp) gages were included on the list that is periodically read

by operations personnel, nor why the maintenance request on the gage had not been completed. This item will be reviewed during a subsequent inspection (280/82-25-01).

- g. (Closed) Violation (280/81-10-01) Failure to Use Strong Tight Container For LSA Shipment. The licensee has implemented a 100% inspection of all shipping containers by Quality Control and health physics personnel. The inspector reviewed the licensee's corrective actions and had no further questions.
- h. (Closed) Violation (280/82-09-01) Exceeding Technical Specification Release Limit. The inspector reviewed the licensee's corrective actions and had no further questions.
- i. (Closed) Violation (280/82-09-02) Failure to Promptly Notify the NRC of an Unplanned Release. The licensee has implemented a program to insure unplanned releases are promptly evaluated and the NRC notified if required. The inspector had no further questions.
- j. (Closed) Violation (280/82-09-03) Failure to Evaluate an Unplanned Release. The inspector reviewed the licensee's corrective action and had no further questions.
- k. (Closed) Unresolved (280/82-14-04) Failure to Keep High Radiation Area Locked. The inspector reviewed the station deviation prepared when the high radiation area door was found unlocked and also, the corrective action taken and had no further questions. The licensee was informed that since: (1) the violation was identified by the licensee, the violations would be a Severity Level V, and (2) prompt corrective action was taken, no enforcement action would be taken by the NRC in accordance with Appendix C of 10 CFR 2.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Followup on IE Bulletins, Circulars, and Notices

- a. Bulletin 80-10, Contamination of Nonradioactive System and Resulting Potential for Unmonitored, Uncontrolled, Release of Radioactivity to Environment. The licensee reviewed all plant systems and identified thirteen systems which are not radioactive, but which interface with contaminated systems and could become contaminated. The licensee determined that all discharge paths are monitored or sampled. The inspector had no further questions.
- b. Circular 81-09, Containment Effluent Water that Bypasses Radioactivity Monitor. Recirculation Spray coolers located in containment are cooled by service water. Each service water discharge line is monitored by a separate radiation monitor. The licensee has identified no other uses

of service water in containment. The inspector had no further questions.

- c. Notice 79-08, Interconnection of Contaminated Systems with Service Air Systems Used as the Source of Breathing Air. The licensee has not identified any apparent interconnections of contaminated systems with the service air system.

6. Followup on Previous Inspector Identified Items (IFI)

- a. (Closed) IFI (280/80-29-20; 281/80-33-20) Establishment of a Formal ALARA Program. The licensee's ALARA program was formally reviewed and approved on May 20, 1982. The ALARA suggestion program has been implemented. The licensee has already identified approximately 240 man-rem which could be saved by using improved methods. The program will be fully implemented on January 1, 1983, at which time full compliance with the ALARA instructions will be required.
- b. (Closed) IFI (280/80-29-24; 281/80-33-24) Balancing of Ventilation Flow. Balancing of the Auxiliary building ventilation system to provide for flow from low contamination levels to higher contamination levels was accomplished as a part of the auxiliary building ventilation system modification. This modification has been completed. The licensee is currently performing a final technical review of the modification and is awaiting the issuance of new Technical Specification for the systems.
- c. (Closed) IFI (280/80-29-25; 281/80-33-25) Permanent Piping for Liquid Radwaste System. The licensee has installed permanent demineralizers and permanent piping in the liquid waste systems. The use of temporary hoses for transfer of radioactive liquids has been minimized.
- d. (Closed) IFI (280/80-29-26; 281/80-33-26) Consideration of Level Indications for Liquid Waste Demineralizers. The licensee has reviewed this item and has determined that the methods for detecting leaks and spills in the decontamination building were adequate. The inspector had no further questions.
- e. (Closed) IFI (280/80-29-28; 281/80-33-28) Consideration of Chemical Control of Wastes Prior to Treatment. The licensee has an established chemical/solvent control program at the plant. This program should minimize the introduction of chemicals which would reduce the efficiency of the demineralizers. The inspector had no further questions.
- f. (Closed) IFI (280/80-29-40; 281/80-33-40). Review to Meet ANSI N323 Criteria. The licensee has reviewed the instrument calibration program and has determined that no changes are necessary. The method of determining the efficiency of personnel friskers is consistent with accepted industry practice. The inspector had no further questions.

- g. (Closed) IFI (280/281/82-09-04) Revise Health Physics and Abnormal Procedures to Specify Evaluations Are To Be Performed When Radiation Monitors Alarm. The inspector reviewed revisions to abnormal procedures "RMS Process Vent Particulate and Gaseous Monitor", and "RMS Ventilation Vent Particulate and Gaseous Monitor" and Health Physics Procedure "Accidental, Unplanned or Uncontrolled Gaseous Releases". The licensee has made appropriate changes to ensure that alarms are evaluated, appropriate samples collected, and notification made in a timely manner. The inspector had no further questions.

7. Licensee Audits and Surveillances

The inspector discussed the audit and surveillance program related to radiation protection, radioactive waste management and transportation of radioactive material with licensee representatives. The inspector reviewed the following quality assurance audits and surveillances performed by the station quality control operations and maintenance group:

QA Audit S82-08, Health Physics/Radiological Control, July 7, 1982.

QA Audit S81-13, Health Physics and Radiation Protection, June 15, 1981.

Surveillance Audit Checklist-21, Contamination Monitoring, June 15, 1982

The inspector commented that the formal audits of radiation protection appeared to address radioactive waste management and transportation of radioactive material only superficially. A licensee representative stated that the QA organization was in the process of upgrading the audit plans. He also stated that the quality control group looked at the entire program in much more depth. The inspector discussed the quality control surveillance program with the representative of QC who performs the radiation protection surveillance. He appeared to be knowledgeable of health physics and has prior experience in the field as a health physics technician. Quality control personnel perform a surveillance for each off site shipment of radioactive waste. The inspector evaluated the frequency, scope and followup action and had no further questions. No violations or deviations were identified.

8. Training

The inspector reviewed the licensee's radiation protection training for radiation workers and health physics technicians. In addition to classroom training new employees are also required to complete a practical factors session which includes dressing in anti-contamination clothing and performing personnel monitoring for contamination. A licensee representative stated that the general employee retraining was being upgraded to include a review of problems or incidents in the plant where training of personnel may prevent a recurrence. The inspector discussed the licensee's periodic retraining program for health physics technicians with licensee representatives and reviewed the information covered in 1981 (General Health Physics Subjects) and 1982 (Plant Systems). Six sessions are presented each year,

with each session repeated four times over a two month period. At the end of the year each technician is given a comprehensive examination covering the topics presented during the year.

No violations or deviations were identified.

9. Internal Exposure Control

The inspector selectively reviewed general in plant air sample results and results of air samples taken to support work covered by a specific radiation work permit. The inspector also observed health physics technicians collecting and analyzing air samples. By review of records, observations and discussions with licensee representatives, the inspector evaluated the licensee's respiratory protection program, including engineering controls, quality of breathing air, MPC-hr controls, issue, use, decontamination and maintenance, storage and surveys of respirators. The inspector surveyed several respirators and determined that the loose contamination levels and radiation levels were well below the licensee's limit for returning the respirator to service.

No violations or deviations were identified.

10. Radiation Work Permits

The inspector reviewed active radiation work permits (RWP) for appropriateness of the radiation protection requirements based upon work scope, location and conditions. During a tour of the plant, the inspector observed the adherence of plant workers to the RWP requirements.

No violations or deviations were identified.

11. Radiological Surveys

The inspector selectively reviewed the records of radiation and contamination surveys performed in August, 1982 and discussed the survey results with licensee representatives. The inspector performed independent radiation and loose surface contamination surveys in the auxiliary building and in the restricted areas outside the radiation controlled area and verified that the areas were properly posted. On September 1, the inspector observed a health physics technician collect Unit 1 containment atmosphere radioactivity samples (particulate, iodine and gas). The samples were collected from the discharge of the containment vacuum pump in accordance with Periodic Test Procedure 38.23. During the sampling, the inspector noted that the sampling rig was a "make shift" apparatus, consisting of a particulate/iodine filter holder and various pieces of tygon tubing that were taped together. A flow meter was introduced in the line to determine the sample flow at the beginning and end of the sampling. During the sampling the tygon tubing came off the filter holder. In discussions with a licensee representative, the inspector stated that the reliability of the sampling could be improved if a sampling rig specifically designed for sampling containment atmosphere

were used. The licensee representative stated that he would review the sampling method used.

No violations or deviations were identified.

12. Routine Radioactive Effluent Releases

The inspector selectively reviewed radioactive liquid and gaseous effluent release records for July and August 1982 and discussed the records with licensee representatives. Technical Specification 3.11 and 4.9 specifies the requirements related to release rates, sampling and analysis, release points and analysis for specific radionuclides.

The inspector reviewed the records of monthly checks performed in 1982 on the Ventilation vent radiation monitors, RM-VG-103 and 104, in accordance with Periodic Test Procedure 26.3. The alarm and alert set points are checked in accordance with PT.26.2.

The inspector discussed with a licensee representative a problem which was discovered at another facility involving the correction of a pressure differential between the plant's gaseous release stacks and the sample chamber in the off-line sample system. Reduced pressure in the sample chamber results in a reduction in the density of the sample chamber gas and a commensurate reduction in the quantity of gas in the chamber. This could result in significant errors in estimating radioactive gases released. A licensee representative stated that the plant's sampling system would be reviewed to determine if the same problem existed at the plant (82-25-02).

13. Unplanned Gaseous Release

At 3:15 p.m., on August 26, 1982, the licensee was sampling the gaseous radioactivity in the gas stripper surge tank. The sample bomb was installed after the sample lines had been purged and the radiation levels along the sample lines had stabilized. The sample lines were purged back to the waste gas system. The licensee had taken numerous precautions to prevent releasing gaseous radioactivity above the Technical Specification limit, including aligning the ventilation system to direct the air flow through charcoal filters, assignment of operators to monitor flow, radiation monitor readings and to maintain continuous communication with the personnel at the sample station. Also, the licensee had previously sampled the Unit 2 volume control tank and Unit 2 pressurizer vapor space on the same day without encountering any problems. When the valve was opened to establish flow through the sample bomb, the ventilation vent radiation monitor, RM-VG-104, alarmed and remained in the alarm condition for less than one minute, and then the count rate returned to normal. The valve was open approximately 30 seconds. The licensee immediately assessed the release and based on the monitor reading and a ventilation vent flow rate of 130,000 CFM determined that the release exceeded the instantaneous Technical Specification limit by 50%.

The station's emergency plan was activated in accordance with plant procedures and an unusual event declared. Appropriate emergency plan implementing procedures were initiated and off-site agencies notified. Calculations performed by the licensee and verified by the inspector indicated that approximately 3.2 Curies (principally xenon-133) of gaseous activity was released from the ventilation vent to the environment. No radioactive particulates or iodines were released. The maximum exposure rate at the site boundary was calculated to be 0.07 mrem/hr based on the release rate and meteorological conditions existing during the release. The maximum dose to an individual at the site boundary was calculated to be less than 0.001 mrem. The licensee's evaluation indicates that a fitting on the sample bomb malfunctioned permitting gas to be released to the sample station hood and then to the ventilation system.

Technical Specification 3.11.B.1 states that the controlled release rate of gaseous waste, excluding halogens and airborne particulates originating from station operations shall be limited such that the summation of the release rate of any radioisotope (Curies per second) divided by the representative unrestricted concentration limit specified in 10 CFR 20, Appendix B, Table II, Column 1 (microCuries per milliliter) does not exceed 200,000 cubic meters per second.

Based on a release rate of 0.11 Curies per second (Xenon-133) and MPC of 3×10^7 microcuries/milliliter, the release exceeded the instantaneous release limit by fifty percent. The inspector stated that since the release was caused by equipment failure, which was not avoidable by reasonable licensee quality assurance measures or management controls no enforcement action would be taken by the NRC in accordance with Appendix C of the Enforcement Policy.

14. Transportation Activities

The inspector reviewed plant procedures for the shipment and receipt of radioactive material, and discussed the procedures with licensee representatives. 10 CFR 71.62 specifies the records the licensee is required to maintain for each shipment of more than Type A quantity of radioactive material in a single package. The inspector selectively reviewed the records of radioactive waste shipments to burial facilities in July and August 1982. The licensee was maintaining the records required by 10 CFR 71.62.

The licensee has assigned an assistant health physics supervisor the responsibility for ensuring that radioactive material leaving the site meets the requirements of the DOT and the NRC.

The inspector reviewed the results of a contamination survey performed on a resin shipping cask which was received by the licensee from Calvert Cliffs Nuclear Station on August 9, 1982. The cask was found to be contaminated, upon receipt, up to 24,000 dpm/100 cm². This is above the limits allowed by

the Department of Transportation. Appropriate notifications were made by the licensee. The licensee decontaminated the cask, loaded the cask with a liner containing contaminated resin and shipped the cask to a burial facility. The inspector reviewed the shipping papers for the shipment and the radiation and contamination surveys.

No violations of deviation were identified.

15. Filter Testing

Technical Specification 4.12 requires in-place testing of the filters in the auxiliary building filter banks, control room emergency filter banks and the relay room emergency filter banks every 12-18 months. The inspector reviewed the filter test records for test performed in 1981 and 1982 and discussed the test with licensee representatives.

No violations or deviations were identified.

16. Instruments and Equipment

The inspector observed a variety of radiological survey instruments in use, checked calibration stickers and performed battery and source checks for selected portable instruments in use and available for use. The inspector selectively reviewed survey instrument calibration records for instruments in use.

The inspector discussed with licensee representatives a problem with the Eberline Model PIC-6A, which was identified by the instrument manufacturer. Information available from the vendor indicates that the meter needle may stick against the lower stop when the stop is dirty. The licensee representative stated that they had several PIC-6A instruments, however, they were old and not used anymore.

No violations or deviations were identified.

17. Posting, Labeling and Control

The inspector reviewed the licensee's posting and control of radiation areas, high radiation areas, airborne radioactivity areas, contamination areas, radioactive material areas and the labeling of radioactive material during tours of the plant.

No violations or deviations were identified.