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

MAY 16 1985

Report Nos.: 50-280/85-13 and 50-281/85-13

Licensee: Virginia Electric and Power Company
Richmond, VA 23261

Docket Nos.: 50-280 and 50-281 License Nos.: DPR-32 and DPR-37

Facility Name: Surry 1 and 2

Inspection Conducted: April 15-19, 1985

Inspectors: _____ 5/8/85
R. H. Albright Date Signed

_____ 5/8/85
B. K. Revsin Date Signed

Approved by: _____ 5/8/85
C. M. Hosey, Section Chief Date Signed
Division of Radiation Safety and Safeguards

SUMMARY

Scope: This routine, unannounced inspection involved 66 inspector-hours on site in the areas of external occupational dose control and personal dosimetry, internal exposure control and assessment, control of radioactive materials and contamination, surveys and monitoring, audits, and radiological problem reports.

Results: One violation - failure to properly label radioactive material.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*H. L. Miller, Assistant Station Manager
*W. D. Grady, Supervisor, QA
*S. P. Sarver, Superintendent, Health Physics
*G. R. Belongia, Quality Assurance
*R. C. Bilyeu, Licensing Coordinator
*K. R. Lefevre, Corporate Health Physics
*L. L. Morris, Supervisor, Health Physics
P. Nottingham, Assistant Health Physics Supervisor
D. Densmore, Assistant Health Physics Supervisor

Other licensee employees contacted included technicians, mechanics, and office personnel.

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on April 19, 1985, with those persons indicated in paragraph 1 above. The unresolved item* (URI) concerning labeling of radioactive material was discussed with licensee management (paragraph 6).

Licensee management was notified in a telephone conversation on May 2, 1985, between S. Elrod of the NRC Region II staff and H. L. Miller, Assistant Station Manager, that the failure to properly label radioactive material would be considered a violation of 10 CFR 20.203(f).

The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

3. Licensee Action on Previous Inspection Findings

Not inspected.

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*An Unresolved Item is a matter about which more information is required to determine whether it is acceptable or may involve a violation or deviation.

4. External Occupational Dose Control and Personal Dosimetry (83724)

During plant tours, the inspector checked the security of the locks at locked high radiation areas and observed survey results and the use of controls specified on selected radiation work permits (RWPs).

a. Use of Dosimeters and Controls

The licensee was required by 10 CFR 20.202, 20.201(b), 20.101, 20.102, 20.104, 20.402, 20.403, 20.405, 19.13, 20.407, and 20.408 to maintain worker's doses below specified levels and keep records of and make reports of doses. The licensee was required by 10 CFR 20.203 and Technical Specification 6.4 to post and control access to plant areas. During observation of work in the plant, the inspector observed the wearing of Thermoluminescent Dosimeters (TLDs) and pocket dosimeters by workers. During plant tours, the inspector observed the posting of areas and made independent measurements of dose to assure proper posting.

b. Processing of Dosimeters

The inspector discussed with the Dosimetry Supervisor the flow of the TLD badge from its return by a worker through the recording of information (dose) from the readout on the worker's dose record, to determine areas where information could possibly be mishandled. The inspector discussed, with the Dosimetry Supervisor, the system for comparison of TLD and pocket dosimeter results. The inspector reviewed selected exposure investigations for the period January 1984 to April 1985. The inspector discussed with the Dosimetry Supervisor, the licensee's quality control and assurance measures for assuring accurate dosimetry results.

c. Dosimetry Results

The inspector reviewed selected plant group TLD results for the period January 1985 to April 1985. For ten individuals who received greater than 1.25 rems in one quarter, the inspector examined each individual's dosimetry file to determine if NRC Form 4s had been completed. The inspector examined one case where a dose was adjusted. The inspector reviewed the results of the TLD vs. pocket chamber comparisons for the month of August 1984.

No violations or deviations were identified.

5. Internal Exposure Control and Assessment (83725)

The licensee was required by 10 CFR 20.103, 20.201(b), 20.401, 20.403, and 20.405 to control uptakes of radioactive material, assess such uptakes, and keep records of and make reports of such uptakes.

a. Control Measures

During plant tours, the inspector observed the use of temporary ventilation systems, containment enclosures, and respirators.

b. Respiratory Maintenance and Issue

The inspector observed the issuance of respirators and reviewed records for five workers who were issued respirators to determine if they were qualified for the respirators issued.

c. Respiratory Fit Testing and Training

The inspector observed operation of the respirator fit test booth and discussed fit testing with the operator of the booth.

d. Uptake Assessment

The inspector discussed whole body counting and bioassay sampling with a whole body counter operator. No personnel were identified during the period January 1984 to April 1985 who required uptake evaluations due to receiving greater than 40 maximum permissible concentration-hours (MPC-HRS) in one week or greater than 10% maximum permissible body burden.

No violations or deviations were identified.

6. Control of Radioactive Materials and Contamination, Surveys, and Monitoring (83726)

The licensee was required by 10 CFR 20.201(b), 20.403, and 20.401 to perform surveys and to maintain records of such surveys necessary to show compliance with regulatory limits. Survey methods and instrumentation were outlined in the FSAR, Chapter 12, while Technical Specification 6.4 provided the requirement for adherence to written procedures. Radiological control procedures further delineated survey methods and frequencies.

a. Surveys

The inspector observed, during plant tours, results of surveys performed by the radiation protection staff. The inspector reviewed two Radiation Work Permits, one for removal of the lower reactor internals and one for steam generator girth weld inspection, to determine if adequate controls were specified. The inspector discussed the controls and monitoring with a Radiation Protection Supervisor and with the Health Physics Superintendent.

During plant tours, the inspector examined radiation level and contamination survey results for selected areas. The inspector performed independent radiation level surveys of selected areas and compared them to licensee survey results. The inspector reviewed selected survey records for the month of April 1985, and discussed with licensee representatives, methods used to disseminate survey results.

The inspector noted that all observed locked high radiation areas inside and outside containment were maintained as required by Technical Specification 6.4. The inspector also noted that during the past year, approximately 41% of the previously designated contamination control area had been cleaned and was now maintained as clean.

b. Frisking

During tours of the plant, the inspector observed the exit of workers and the movement of material from contamination control to clean areas to determine if proper frisking was performed by workers and if proper direct and removable contamination surveys were performed on materials. The inspector reviewed selected records of skin contamination occurrences and resulting evaluations and corrective actions. Records and discussions with licensee representatives showed that contamination had been promptly removed from the workers using routine washing techniques. Subsequent whole body counts showed less than detectable internal deposition of radioactive material.

c. Instrumentation

During plant tours, the inspector observed the use of survey instruments by the plant staff, and compared plant survey instrument readings with readings made by the inspector using NRC equipment. The inspector examined calibration stickers on radiation protection instruments in use by licensee staff, stored in the calibration facility and the instrument issue room, and at frisker and air sampling stations throughout the plant. The inspector discussed calibration methods and methods for performing source checks prior to each instrument use with the radiation protection technician in charge of calibrations and with the Health Physics Superintendent. Procedures and methods for calibration of teletectors, RO-2s and RO-2As, as well as beta and frisker calibrations were reviewed.

Several areas of the instrument calibration program were identified as needing upgrading. These were as follows:

(1) Verification of calculated decay curves for all calibration sources. The inspector stated to the licensee that calculational errors in source decay corrections may affect instrument calibration and should be verified by an individual other than the radiation protection technician who performed the original decay calculations.

(2) Procedural revisions to include Co-60 beam recertification every three years, retention of repair/maintenance histories for each instrument, independent review of each calibration certificate to insure adequacy and completeness of each instrument calibration, and evaluation of appropriate test points for use in instrument reproducibility (precision) testing, and inclusion of two such test points for teletectors since they have both a high range and a low range detector.

The licensee acknowledged the improvement items identified by the inspector and stated that source decay calculations would be verified by a health physicist by June 1, 1985. The licensee further stated that this requirement for verification of source decay calculations would be incorporated into written procedures by January 1, 1986. The licensee informed the inspector that calibration certificates for all instruments will be revised to reflect precision test points by September 1, 1985, and that these test points would be incorporated into written procedures by January 1, 1986. The inspector informed the licensee that the instrument calibration program and the above items would be reviewed during a subsequent inspection. (50-280, 281/85-13-01).

d. Release of Materials for Unrestricted Use

The inspector discussed with a radiation protection technician and a Health Physics Supervisor, the program for surveying items released from contaminated areas and reviewed the procedures for such release. During tours of plant areas, the inspector observed posting of containers and performed independent surveys to determine if containers of radioactive material were properly identified

e. Caution Signs, Labels, Signals and Controls

10 CFR 20.203(a) required that symbols prescribed by this section shall use the conventional radiation caution colors (magenta or purple on yellow background). 10 CFR 20.203(f) required that each container of licensed material shall bear a durable, clearly visible label identifying the radioactive contents when quantities of radioactive material exceed those specified in Appendix C.

During tours of the plant, the inspector observed the use of purple plastic bags with black markings for containing radioactive material. In addition, a piece of contaminated insulation was noted which had been wrapped in yellow herculite and placed behind a rope barrier posted with a radioactive material sign. The side of the herculite package was labeled with a dose rate; however, the radiation caution symbol and the words "Caution" or "Danger - Radioactive Material" were not present. The dose rate from this package was approximately 30 mR/hr. These practices are inconsistent with the requirements pursuant to 10 CFR 20.203(a) and 10 CFR 20.203(f).

The inspector discussed these areas with licensee representatives who indicated that the Radiological Control Area (RCA) was considered a work area, and thus would not require specific labeling for each container since the RCA, itself, is posted as both as a radiation area and a radioactive materials area. Additionally, the licensee representative indicated that the purple bags with black, warning markings met the intent of 10 CFR 20.203(a) since workers had been made aware of this situation. The inspector stated that the use of purple bags with black markings appears not to meet the labeling requirements of 10 CFR 20.203(a) and (f).

Failure of the licensee to label containers of radioactive material with a label that bears the standard radiation caution symbol and the words "CAUTION or DANGER RADIOACTIVE MATERIAL" is an apparent violation of 10 CFR 20.203(f) (50-280, 281/85-13-02).

7. Audits

The licensee was required by Technical Specification 6.1 to perform audits of radiological controls and chemistry operations. The inspector reviewed audits of the radiation protection operations dated June 1984 and January 1985, the responses to these audits, and the status of selective corrective actions resulting from the audits. The inspector discussed the results of these audits with licensee representatives.

No violations or deviations were identified.

8. Radiological Problem Reports

The inspector discussed with the Superintendent of Health Physics a Radiological Problem Report dated April 16, 1985. The Radiological Problem Report described a situation where workers had signed in on an incorrect Radiation Work Permit (RWP) for snubber removal. The result was that the workers were not properly dressed for the snubber removable (i.e., no rain suit or respirator). When the workers reported to the health physics (HP technician, who would provide health physics coverage for their work, the HP technician told the workers that they could not start work, that they were not properly dressed and that he needed time to set up the job and change his air sampler head. The four workers involved were new contract mechanics. When the HP technician returned to the job site, he found that the work had been completed. Three of the four workers were found to have facial contamination.

Whole body counts performed on the four workers after their decontamination did not indicate any internally deposited contamination. The licensee restricted the workers from the RCA until corrective action (counseling the workers on compliance with requirements for radiological work) was complete. The licensee was notified that the failure of the workers to comply with the RWP requirements was a violation, however, this would be considered a licensee identified violation because the criteria in 10 CFR 2, Appendix C (V)(A) for a licensee identified violation had been satisfied.