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

FEB 10 1986

Report Nos.: 50-338/86-02 and 50-339/86-02

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: January 6-10, 1986

Inspector: _____ 2/7/86
B. K. Revsin Date Signed

Accompanying Personnel: T. G. Lee and C. M. Hosey

Approved by: _____ 2/7/86
C. M. Hosey, Section Chief Date Signed
Division of Radiation Safety and Safeguards

SUMMARY

Scope: This routine, unannounced inspection entailed 41 inspector-hours at the site during normal duty hours, in the areas of radiation protection including training and qualifications; external exposure control and personal dosimetry; control of radioactive materials, posting and labeling; internal exposure control and assessment; and the program for maintaining radiation exposure as low as reasonably achievable (ALARA).

Results: No violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*W. W. Harrell, Station Manager
*G. E. Smith, Assistant Station Manager
*W. Cameron, Director, Health Physics Corporate
*A. H. Stafford, Superintendent, Health Physics
*J. A. Stall, Superintendent, Technical Services
*O. W. Hickman, Jr., Supervisor, Health Physics
*F. T. Terminella, Supervisor, Quality Control
*J. Leberstien, Licensing Coordinator
*D. L. Reid, Reactor Engineer
R. Irwin, Supervisor, Health Physics
T. Johnson, Quality Control Supervisor, Quality Assurance Department
H. Moyers, Health Physics Shift Supervisor

Other Organizations

*R. R. Owens, Institute for Nuclear Power Operations (INPO)
L. Booker, Institute for Resource Management

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on January 10, 1986, with those persons indicated in Paragraph 1 above. 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

(Closed) Violation (338, 339/84-21-01) Failure to show radioactive shipping name on shipping papers. The inspector reviewed and verified the licensee's corrective actions as stated in Virginia Electric and Power Company's letter dated August 10, 1984.

4. Training and Qualifications (83723)

a. Basic Radiation Protection Training

The licensee was required by 10 CFR 19.12 to provide basic radiation protection training to workers. Regulatory Guides 8.27, 8.29, and 8.13 outlined topics that should be included in such training. Chapters 12 and 13 of the Final Safety Analysis Report (FSAR) contained further commitments regarding training. The inspector discussed the initial general employee radiation protection training (GET) with the Lead Health Physics (HP) instructor. In 1985, a new GET training program had been instituted by the licensee and all radiation workers had been required to qualify under this new program. At the time of the inspection no GET retraining had yet been conducted.

b. Radiation Protection and Chemistry Technician Qualification

The licensee was required by Technical Specification 6.3.1 to qualify radiation protection and chemistry technicians in accordance with ANSI N18.1-1971. The inspector discussed with the Lead HP instructor and additional members of the training staff the training and qualification program. The inspector reviewed the training records for selected technicians to assure all topics were completed. The program was divided into seven discrete steps, each of which required six months for completion. Step one consisted of formal classroom training while steps two through seven included classroom and on-the-job training. Each step had job performance measures which were to be signed off by the HP staff to qualify a technician to perform a task independently.

A licensee representative stated that the HP technician training program had been submitted to INPO for accreditation and that INPO had scheduled an accreditation inspection for the program during the first week of February 1986.

The chemistry technician training program had not progressed as rapidly as the HP program. Development of the chemistry technician training program was underway using job task analysis methodology. The licensee projected that this program would be submitted to INPO for accreditation by mid-to-late 1986.

The inspector discussed with the Lead HP instructor, a new category of HP technician which had been designated HP Specialist. The HP Specialist training program consisted of three, six month training steps, each of which was specifically related to the job the specialist would be expected to perform. Individuals in these positions would not rotate to other HP duties.

The inspector reviewed the licensee's HP technician requalification training program and discussed the program with licensee representatives. A licensee representative stated that HP technician

requalification was an on-going process whereby every fifth week, the technician was attending training.

The inspector reviewed the licensee's program for qualification of contract radiation protection tecnnicians and reviewed the resumes of selected individuals.

c. Staffing

Technical Specification 6.2.2 specified minimum plant staffing. FSAR Chapters 12 and 13 outlined further details on staffing. The HP Superintendent stated that the facility was authorized 80 HP staff and as of January 6, 1986, 75 positions were filled. During the last outage, November and December, 1985, 164 contract HP personnel were brought onsite. One hundred of these individuals were HP technicians and 64 were used for plant decontamination. The inspector examined shift staffing for the day shift on January 7, 1986, to determine if it met minimum criteria for radiation protection staffing levels.

No violations or deviations were identified.

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

The licensee was required by 10 CFR 20.201(b) and 20.401 to perform surveys to show compliance with regulatory limits and to maintain records of such surveys. Chapter 12 of the FSAR further outlined survey methods and instrumentation. Technical Specification 6.8 required the licensee to follow written procedures. Radiological control procedures further delineated survey methods and frequencies.

a. Surveys

The inspector observed, during plant tours, surveys being performed by radiation protection staff. The inspector reviewed selected Radiation Work Permits (RWP), to determine if adequate controls were specified. The inspector observed the progression of reactor head detentioning work during the unscheduled outage. The inspector discussed the controls and monitoring of this work with a radiation protection foreman on the job

During plant tours, the inspector observed radiation level and contamination survey results outside selected cubicles. 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 January 1986 and discussed with licensee representatives methods used to disseminate survey results.

b. Frisking

During tours of the plant, the inspector observed the exit of workers and movement of material from contamination control areas to clean areas to determine if proper frisking was performed by workers, and that proper direct and removable contamination surveys were performed on materials. The inspector reviewed selected records of contamination events occurring during 1985 and resulting licensee evaluations and corrective actions. During 1985, 576 personnel contaminations occurred, 367 of which occurred during the refueling outage in November and December, 1985. A licensee representative stated that the large number of contamination incidents during the outage was due in part to the large number of workers onsite and the extensive amount of work that was being performed in the containment during the 48-day outage. A review of records and discussions with licensee representatives indicated contamination had been promptly removed from the workers using routine decontamination techniques.

c. Instrumentation

During plant tours, the inspector observed the use of survey instruments by plant staff and compared plant survey meter results with results of surveys made by the inspector using NRC equipment. The inspector examined calibration stickers on radiation protection instruments in use by licensee staff in the plant. The inspector observed radiation protection technicians performing instrument source checks prior to instrument use.

d. Release of Materials for Unrestricted Use

The inspector observed surveys performed by radiation protection technicians for release of items from contaminated areas. During tours of plant areas, the inspector observed labeling of radioactive waste containers and performed independent surveys to determine if containers of radioactive material were properly labeled.

No violations or deviations were identified.

6. Facilities and Equipment (83727)

FSAR Chapters 1 and 12 specified plant layout and radiation protection facilities and equipment. During plant tours, the inspector observed the operation of the contaminated clothing laundry and the flow of traffic through the change rooms.

No violations or deviations were identified.

7. Audits (83724, 83728, 84722)

The licensee was required by Technical Specification 6.5.2.1 to perform audits of radiological safety. The inspector reviewed Quality Assurance Department audits of the radiation protection program dated June 1985 to December 1985, the responses to these audits, and the status of selected corrective actions resulting from the audits. The inspector also reviewed audits performed by corporate HP personnel for 1985, which were discussed with licensee representatives. Corrective action had been initiated for all audit findings except the November 25, 1985, corporate HP audit. These audit findings had been received by the site HP staff during the refueling outage and consequently, no response had yet been formulated. Licensee representatives stated that work on the audit responses was underway. The inspector determined that audits had been conducted using staff with technical backgrounds in HP.

No violations or deviations were identified.

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

During plant tours, the inspector checked the security of three locked high radiation areas, observed posting of survey results and reviewed the use of controls as 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, 2.102, 20.104, 20.402, 20.403, 20.405, 19.13, 20.407, and 20.408 to maintain worker's doses below specified levels and to keep records of and make reports of doses. The licensee was required by 10 CFR 20.203 to post and control access to plant areas. FSAR Chapter 12 also contained commitments regarding dosimetry and dose controls. During observation of work in the plant, the inspector observed the wearing of 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. Dosimetry Results

The inspector reviewed selected TLD results for 1985. For three individuals who received greater than 1.25 rems in one quarter, the inspector examined each individual's dosimetry file to determine if NRC Form 4's had been completed.

c. Management Review of Dosimetry Results

The inspector discussed administrative dose control extensions with selected supervisors and the HP Superintendent. The inspector reviewed records of six cases where workers exceeded administrative controls

without dose extensions. The inspector discussed these cases with the HP Superintendent.

No violations or deviations were identified.

9. 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. FSAR Chapter 12 also includes commitments regarding internal exposure control and assessment.

a. Control Measures

During plant tours, the inspector observed the use of respirators and reviewed respiratory protection procedures. The inspector observed workers being quantitatively fit tested prior to respirator use.

b. Uptake Assessment

The inspector observed operation of the whole body counter and discussed its operation and results with the counter operator. The inspector reviewed the results of the analyses performed for selected individuals for 1985. The inspector reviewed selected MPC-hour records for November 1985 and discussed actions taken by the licensee for personnel that received greater than 2 MPC hours in a day and 10 MPC hours in a week.

No violations or deviations were identified.

10. Maintaining Occupational Doses ALARA (83728)

10 CFR 20.1(c) specified that licensees should implement programs to keep workers' doses ALARA. FSAR Chapter 12 also contained licensee commitments regarding worker ALARA action. The recommended elements of an ALARA program are contained in Regulatory Guide 8.8, "Information Relevant to Ensuring that Occupational Exposure at Nuclear Power Stations will be ALARA," and Regulatory Guide 8.10, "Operating Philosophy for Maintaining Occupational Radiation Exposures ALARA."

The inspector reviewed procedures contained in the ALARA Manual that implemented the elements of the plant ALARA program and monthly ALARA committee meeting minutes dated February 15, 1985, through December 23, 1985. Two ALARA post-job reviews, Nos. 85-AE-11 and 85-AE-12, for spent fuel rerack were examined. ALARA post job reviews for steam generator work during the recent outage had not been completed as of January 9, 1986.

The inspector discussed the ALARA goals and objectives for 1986 with licensee representatives and reviewed the man-rem estimates for 1986. A collective dose of 485 man-rem had been projected for the facility for 1986. For 1985, 314 man-rem had been projected for the facility, whereas the

actual collective dose as of December 31, 1985, was 758 man-rem as determined by TLD. This represented a percentage increase of 141% over initial projections. The man-rem projected for the November-December, 1985, outage was 301 man-rem while the actual dose received during this 48 day period was approximately 600 man-rem, a percentage increase of 99.3% over initial projections. The HP Superintendent stated that he was unsure as to the reason for the large exposure associated with the outage and offered the opinion that a single causative factor was unlikely. He stated that this area was presently under review.

11. Problem Reports and Radiological Deficiency Reports

The licensee had recently initiated a new method for tracking HP occurrences called Radiological Problem Reports (RPR). A licensee representative stated that the system had been computerized which would allow them to analyze RPR data more efficiently and that it was anticipated that such information would augment efforts to keep exposures ALARA by identifying problem areas. The inspector examined selected RPRs for November and December 1985, and reviewed corrective actions taken.

No violations or deviations were identified.

12. Statistics

a. Solid Waste

During 1985, the licensee had made sixty-one shipments of radioactive waste consisting of 23,423 cubic feet of waste containing 290.29 curies of activity. During 1985, the licensee had generated 23,023 cubic feet of solid radioactive waste. At present, the radwaste inventory onsite was 400 cubic feet.

b. Contaminated Areas

On January 1, 1985, approximately 20,675 square feet of the plant was maintained as contaminated. As of January 1, 1986, this area had decreased to 16,687 square feet which represented approximately six to seven percent of the total plant area.

13. IE Information Notices (92717)

The following IE Information Notices were reviewed to ensure their receipt and review by appropriate licensee management:

IN-84-75, Calibration Problems - Eberline Instrument Model 6112B Analog Teletectors

IN-85-06, Contamination of Breathing Air Systems

IN-85-07, Contaminated Radiography Source Shipments

IN-85-12, Recent Fuel Handling Events

IN-85-46, Clarification of Several Aspects of Removable Radioactive Surface Contamination Limits for Transport Packages

IN-85-60, Defective Negative Pressure, Air Purifying Full Facepiece Respirators.

14. Followup On Previous Open Items (93701)

(Closed) Inspector Followup Item (50-338/80-21-20, 50-339/80-22-20) Determination of sample hood face velocities. The inspector reviewed the licensee's actions as documented in Engineering Work Request 82-137 and found them acceptable.