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

SEP 17 1984

Report Nos.: 50-327/84-21 and 50-328/84-22

Licensee: Tennessee Valley Authority
500A Chestnut Street
Chattanooga, TN 37401

Docket Nos.: 50-327 and 50-328/License Nos.: DPR-77 and DPR-79

Facility Name: Sequoyah 1 and 2

Inspection Conducted: August 6-10, 1984

Inspector: for W. W. Peery — Date Signed 9/13/84

Approved by: George Jenkins, Section Chief — Date Signed 9/13/84
Facilities Radiation Protection Branch
Division of Radiation Safety and Safeguards

SUMMARY

Scope: This routine, unannounced inspection involved 32 inspector-hours on site in the areas of organization and management, training and qualifications, internal exposures, external exposures, control of radioactive material, ALARA, solid wastes and transportation and PASS follow-up items.

Results: A violation was identified - two instances of failure to follow radiation protection procedures were found.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*T. G. Campbell, Site Director
*P. R. Wallace, Plant Manager
*J. M. Anthony, Operations Supervisor
*M. R. Harding, Engineering Group Supervisor
*R. W Fortenberry, Engineering Supervisor
*W. L. Williams, Engineering Supervisor
*R. E. Alsup, Compliance Supervisor
D. W. Nix, Leader, Radiochemical Engineering Unit
*G. B. Kirk, Compliance Engineer
*S. P. Holdefer, Health Physics Supervisor
*J. S. Steigelman, Assistant Plant Health Physics Supervisor
J. Dills, Assistant Health Physics Supervisor
*E. Paris, Assistant Plant Health Physicist
*M. R. Cooper, Compliance Engineer
L. Little, Director, Training
J. Hamilton, FQE Supervisor
*A. L. Varner, FQE Engineer
*D. L. Paul, Project Group
E. Whaley, Chemical Unit
D. Amos, SQNP Engineer
R. Ramsey, Radioactive Waste Supervisor

Other licensee employees contacted included, three technicians, one operator, and office personnel.

*Attended exit interview.

2. Exit Interview

The inspection scope and findings were summarized on August 10, 1984, with those persons indicated in paragraph 1 above. The violation, failure to follow procedures, described in paragraph 7, was discussed in detail. The licensee acknowledged the inspection findings and took no exceptions.

3. Licensee Action on Previous Enforcement Matters

Not inspected.

4. Inspector Follow-up (92701)

a. (Open) Inspector Follow-up Item (IFI) 50-327, 328/84-14-01: A modification was made to the vent from the drain tank of the Post Accident Sampling System (PASS), Unit 1, and this design had not been reviewed with respect to the dose the operator may receive from this modification (NUREG-0737, Criterion 6, 5 rem whole body and 75 rem extremities). Also, administrative controls need to be established for

manually operated valves in the system. Neither of these items had been completed at the time of this inspection.

b. (Closed) IFI 50-327, 328/84-14-02 and 84-14-03: Unable to meet the accuracy guidelines of NUREG-0737 for Iodine-131, Cesium-134 and Xenon-133 in reactor coolant samples. During this inspection the licensee demonstrated the capability to measure these radionuclides in reactor coolant samples within the accuracy guidelines.

c. (Closed) IFI 50-327, 328/84-14-04: Unable to meet the accuracy guidelines for Iodine-131, Iodine-133 and Xenon-133 in containment samples. During this inspection, the licensee demonstrated the capability to measure these radionuclides in containment samples within the accuracy guidelines.

d. (Closed) IFI 50-327, 328/84-14-05: The licensee demonstrated the capability to take undiluted reactor coolant samples in a shielded cask at the time of the last inspection, however, part of the undiluted sample leaked into the cask cavity. During this inspection, the licensee demonstrated that the coolant sample could be taken without leakage into the cask cavity.

e. (Open) IFI 50-327, 328/84-14-06: The licensee did not have procedures for calibration, recalibration requirements and periodic performance tests for the equipment at the time of the last inspection. At the time of this inspection, preparation of the procedures were in final stages but had not been completed.

5. Organization and Management Controls (83722)

Technical Specification 6.2.2 describes the licensee's organization.

The inspector reviewed the licensee's organization, staffing level, and lines of authority as they related to radiation protection and radioactive material control and verified that the licensee had not made organizational changes which would adversely affect the ability to control radiation exposures or radioactive material.

No violations or deviations were identified.

6. Training and Qualification (83723)

Technical Specification 6.3.1 requires that each member of the facility staff meet or exceed the minimum qualification of ANSI N18.1-1971 for comparable positions, except for the Health Physicist-Radiochemist (Radiation Protection Manager) who shall meet or exceed the qualifications of Regulatory Guide 1.8 September 1975.

Paragraph 4.5.2 of ANSI N18.1 states that technicians in responsible positions shall have a minimum of two years of working experience in their specialty. The inspector reviewed the experience and training records for

selected Health Physics technicians currently working at the station. The inspector observed five technicians during implementation of radiological controls for selected activities.

Regulatory Guide 1.8, September, 1975 requires the Radiation Protection Manager to have a bachelor's degree or the equivalent in a science or engineering subject, including some formal training in radiation protection and at least five years of professional experience in applied radiation protection. At least three years of the professional experience should be in applied radiation protection work in a nuclear facility dealing with radiological problems similar to those encountered in nuclear power plants.

The Radiation Protection Manager exceeds these requirements of Regulatory Guide 1.8.

10 CFR 19.12 requires the licensee to instruct all individuals working in or frequenting any portion of the restricted area in the health protection problems associated with exposure to radioactive material or radiation, in precautions or procedures to minimize exposures, and in the purpose and functions of protective devices employed, applicable provisions of Commission regulations, individual responsibilities and the availability of radiation exposure data.

The licensee's training program met the standards of ANSI N18.1 and the INPO training program.

The inspector discussed the radiation aspects of the general employee training program with licensee representatives and selectively reviewed the training records of personnel from various plant organizations. During tours of the plant, the inspector interviewed workers to assess their knowledge and understanding of radiation protection requirements.

The inspector reviewed changes in the licensee's training policies, goals, program and methods related to radiation protection, radioactive material control and plant chemistry, discussed the changes with licensee representatives and verified that the changes should not adversely affect the licensee's program.

Technical Specification 6.4.1 states that a retraining and replacement training program for the facility staff shall be in accordance with ANSI N18.1-1971. Paragraph 5.5 of ANSI N18.1 states that a training program shall be established which maintains the proficiency of the operating organization through periodic training exercises, instruction periods and reviews.

The inspector discussed the replacement training and refresher training program for various personnel with licensee representatives and reviewed selected training records.

No violations or deviations were identified.

7. External Exposure Control (83724)

10 CFR 20.101 specifies applicable radiation dose standards.

10 CFR 20.202 requires each licensee to supply appropriate personnel monitoring equipment to specific individuals and require the use of such equipment.

Technical Specification 6.11, requires that Radiation Protection procedures be written and followed.

RCI-3, Personnel Monitoring, states that TLD badges and dosimeters shall normally be worn on the front of persons between the neck and the waist.

SQA-133, Radioactive Waste Management, states that green containers shall be used for non-radioactive material and yellow containers shall be used for radioactive material.

Contrary to the above, on August 8-9, 1984, the inspector observed several workers wearing TLD's and dosimeters in their trouser pockets rather than above the waist. The inspector also observed that numerous yellow containers, rather than green containers, were being used for non-radioactive materials. The inspector informed the licensee that failure to follow procedures is a violation of Technical Specification 6.11 which requires adherence to the procedures. (VIO 50-327/84-21-01 and 50-328/84-22-01)

The inspector reviewed licensee records of external exposures and found no exposures in excess of the limits prescribed by 10 CFR 20.101.

8. Internal Exposure Control (83725)

10 CFR 20.103(a) establishes the limits for exposure of individuals to concentrations of radioactive materials in air in restricted areas. This section also requires that suitable measurements of concentrations of radioactive materials in air be performed to detect and evaluate the airborne radioactivity in restricted areas and that appropriate bioassays be performed to detect and assess individual intakes of radioactivity.

The inspector reviewed selected results of general in-plant air samples taken during the period January 1 to July 31, 1984, and the results of air samples taken to support work authorized by specific radiation work permits.

The inspector reviewed selected results of bioassays (whole body counts/ urinalyses) and the licensee's assessment of individual intakes of radioactive material performed during the period January 1 to July 31, 1984.

10 CFR 20.103 (b) requires the licensee to use process or other engineering controls, to the extent practicable, to limit concentrations of radioactive material in air to levels below that specified in Part 20, Appendix B, Table 1, Column 1 or limit concentrations, when averaged over the number of hours

in any week during which individuals are in the area, to less than 25 percent of the specified concentrations.

The use of process and engineering controls to limit airborne radioactivity concentrations in the plant was discussed with licensee representatives and the use of such controls was observed during tours of the plant.

10 CFR 20.103(b) requires that when it is impracticable to apply process or engineering controls to limit concentrations of radioactive material in air below 25% of the concentrations specified in Appendix B, Table 1, Column 1, other precautionary measures should be used to maintain the intake of radioactive material by any individual within seven consecutive days as far below 40 MPC-hours as is reasonably achievable. By review of records, observations and discussions with licensee representatives, the inspector evaluated the licensee's respiratory protection program, including training, medical qualifications, fit-testing, MPC-hour controls, quality of breathing air and the issue, use, decontamination, repair and storage of respirators.

The inspector reviewed plant procedures including changes which established the licensee's internal exposure control and assessment program and verified that the procedures were consistent with regulations, Technical Specifications and good health physics practices.

No violations or deviations were identified.

9. Control of Radioactive Material (83726)

10 CFR 20.201(b) requires each licensee to make or cause to be made such surveys as (1) may be necessary for the licensee to comply with the regulations and (2) are reasonable under the circumstances to evaluate the extent of radiation hazards that may be present.

The inspector reviewed the licensee's procedure for the control of radioactive materials and determined that there had been no changes which adversely affect the program. The inspector observed numerous instruments in use and found all calibrations timely and the instruments apparently operating properly. The inspector inspected the contents of one emergency cabinet and found that the inventory of equipment and instrumentation was as described on the inventory list and that the instruments had received timely calibration.

The inspector performed independent radiation surveys and determined that various areas were properly posted.

The licensee has a program for the decontamination of areas. The inspector observed numerous areas roped and posted as contaminated areas. The inspector reviewed the licensee's reports entitled, Major Decontamination Effort, for the months of May, June and July 1984, and found that good progress was made in decontaminating and releasing areas during May and June but no progress was made in July. This was pointed out to management at the exit interview and management acknowledged the concern.

The inspector selectively reviewed licensee records of radiation surveys including surveys associated with Radiation Work Permits and determined that the surveys had been made as required by licensee procedures.

The inspector observed the proper use of friskers and portal monitors by numerous licensee personnel.

No violations or deviations were identified.

10. ALARA Program (83728)

10 CFR 20.1c states that persons engaged in activities under licenses issued by the NRC should make every reasonable effort to maintain radiation exposure as low as reasonably achievable (ALARA). The recommended elements of an ALARA program are contained in Regulatory Guide 8.8, Information Relevant to Ensuring that Occupational Radiation Exposure at Nuclear Power Stations will be ALARA, and Regulatory Guide 8.10, Operating Philosophy for Maintaining Occupational Radiation Exposures ALARA.

The inspector discussed the ALARA program with individuals responsible for the program and reviewed records to determine that the ALARA engineer had input to and approved each job that had significant potential for personnel exposure.

The inspector discussed ALARA preplanning for an upcoming refueling outage of Unit 2 and determined that preplanning is in progress and that the preplanning is systematized so that all work during the outage will receive ALARA consideration.

The licensee representative informed the inspector that there had been good worker response in submitting suggestions to improve the ALARA program.

The inspector reviewed licensee personnel exposure records and determined that as of August 6, 1984, 648 Man-Rem had been expended of an estimated 1000 Man-Rem for the year 1984.

No violations or deviations were identified.

11. Solid Wastes and Transportation (84722 and 86721)

Technical Specification 3.11.3, 10 CFR 20, 61 and 71, and 49 CFR Parts 171 through 178 contain requirements for solid waste handling and transportation.

The inspector reviewed the results of audits and corrective action.

The inspector determined that there had been no changes in the program involving 10 CFR 50.59.

The inspector observed the processing, control and storage of solid wastes.

The inspector determined that the licensee had procedures for the proper classification of wastes, preparation of waste manifests, marking of packages with class of waste and investigation of lost shipments. There had been no lost shipments.

The inspector reviewed licensee procedures which deal with shipment and receipt of Radioactive Material, packaging, classification and manifests. All of the procedures were approved by management.

The inspector determined the licensee's practice regarding the procurement and reuse of packaging. The inspector determined that the licensee has had no transportation incidents during the period January 1, 1984 to August 10, 1984.

The inspector observed a truck shipment of dewatered spent resin and reviewed all of the shipping papers associated with the shipment.

No violations or deviations were identified.

12. IFI 50-327,328/84-21-07, 327,328/84-22-07 Compactor Ventilation

During tours of the plant, the inspector noted that the flexible plastic pipe from the exhaust to the waste compactor was partially loose and this was discussed during the exit interview. A licensee representative stated that a Maintenance Request (MR) had already been issued to correct this matter. The inspector will review this at the time of the next inspection.

13. IFI 50-327,328/84-21-08, 327,328/84-22-08 Container Labeling

During tours of the plant, the inspector noted several containers that were not labeled; however, the status of these containers was not known and they may not require labeling. The inspector stated that labeling throughout the plant should be reviewed by the licensee. Licensee management acknowledged this concern. The inspector will review this at the time of the next inspection.