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

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Report Nos.: 50-327/86-02 and 50-328/86-02

Licensee: Tennessee Valley Authority
6N38 A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

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

Facility Name: Sequoyah Nuclear Plant

Inspection Conducted: January 6-10, 1986

Inspector: Gloyd B Kuzo 3 February 1986
G. B. Kuzo Date Signed

Approved by: P. G. Stoddart for 2/6/86
W. E. Cline, Section Chief Date Signed
Emergency Preparedness and Radiological
Protection Branch
Division of Radiation Safety and Safeguards

SUMMARY

Scope: This routine, unannounced inspection entailed 45 inspector-hours onsite in the areas of gaseous and liquid radwaste systems; radiological effluent accountability; reactor coolant and secondary water Technical Specification chemistry requirements; and review of selected inspector followup items.

Results: No violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*P. R. Wallace, Plant Manager
*J. M. Anthony, Operations Group Supervisor
M. R. Harding, Engineering Group Supervisor
*R. W. Fortenberry, Engineering Section Supervisor
*W. L. Williams, Chemistry Unit Supervisor
*D. G. Amos, Chemistry Engineer
*J. D. Pierce, Radiation Chemistry Laboratory Supervisor
*G. B. Kirk, Compliance Supervisor
*R. C. Birchell, Compliance, Mechanical Engineer
D. C. Craven, QA Staff Supervisor
*D. E. Crawley, Health Physics Supervisor
H. R. Rogers, Compliance Engineer
J. M. Hereford, Instrument Engineer
*J. A. McPherson, Engineering & Test Unit Supervisor
*H. D. Elkins, Jr., Group Supervisor, Instrument Maintenance
M. Cooper, Mechanical Engineer
M. Eddings, Engineering Associate
R. M. Sexton, QA Evaluator
R. J. Griffin, NSRS Site Representative
*J. M. Qualls, Radwaste Controller
*S. W. Stevens, Chemical Engineer

Other licensee employees contacted included engineers, technicians, operators, and office personnel.

*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 inspector discussed a potential unresolved item regarding Technical Specification (TS) Semiannual Radiological Effluent reports (Paragraph 6.b). In addition, one inspector followup item concerning methyl iodide retention testing of ventilation charcoal adsorber was discussed (Paragraph 5.b). On January 16, 1986, NRC Region II representatives informed cognizant licensee personnel that proposed changes to the Semiannual Effluent Report to better meet the intent of TS requirements would be considered an inspector followup item instead of an unresolved item (Paragraph 6.b). Licensee representatives acknowledged the inspector's comments. 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. Audits (84723, 84724)

Technical Specification (TS) 6.5.2.8 states audits of unit activities shall be performed under the cognizance of the Nuclear Safety Review Board (NSRB) encompassing conformance of unit operation to provisions contained within the TS's and applicable license 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; and the performance of activities required by the Quality Assurance (QA) Program to meet the criteria of Regulatory Guide 4.15, December 1977 at least once per 12 months. The inspector reviewed the following audit reports.

(a) QSS-A-85-0016 Environmental Monitoring and RARC, Radiological Effluent Monitoring, ALARA Program, September 23 - November 20, 1985.

(b) CH-8400-18 Radiological Effluent Monitoring, Environmental Dose Assessment, and Radiological Assessment Review Committee (RARC), August 20 - September 7, 1984.

(c) CH-8300-05 Radiological Effluent Monitoring, Radiological Environmental Monitor; Environmental Dose Assessment, and Radiological Assessment Review Committees, September 26 - October 14, 1983.

The inspector noted that the radiological effluent measurement program areas were audited against the Final Safety Analysis Report (FSAR); Technical Specifications; Regulatory Guides 1.21, 1.33, and 4.15; applicable sections of 10 CFR; TVA Division of Nuclear Power and Office of Power Operations QA Manuals; and approved plant procedures. The inspector noted that the most recent audit did not identify any concerns regarding the scope of this inspection. The inspector reviewed and discussed with licensee representatives corrective actions and/or evaluations regarding a previously identified deviation regarding radioactive effluent release reporting requirements detailed in the 1984 audit report. This item is discussed in Paragraph 6.b. The inspector informed licensee representatives that the audit program for effluent measurements was adequate.

No violations or deviations were identified.

5. Procedures and Manuals (84723, 84724)

a. Technical Specification 6.8.1 requires written procedures to be established, implemented and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Rev. 2, February 1978 and the Quality Assurance Program for Effluent Monitoring, using the guidance contained in Regulatory Guide 4.15,

December 1977. The inspector reviewed selected portions of the following procedures:

1. TI-9 Test Methods for Nuclear Aircleaning Systems, Rev. 5, 10/9/85

2. TI-50 Air Flow measurement Methods, Rev. 4, 9/5/84.

3. SI-82 Functional Tests for Radiation Monitoring Systems, Rev. 11, 6/21/85.

4. SI-83 Channel Calibration for Radiation Monitoring System, Rev. 12 11/7/85.

5. SI-132 Auxiliary Building Gas Treatment System Filter Train Test, Rev. 15, 10/24/85.

6. SI-142 Emergency Gas Treatment System Filter Train Test, Rev. 10, 2/1/85.

7. SI-143 Control Building Emergency Air Cleanup System Filter Train Test Requirements, Rev. 9, 12/21/82.

8. SI-141 Functional Test for the Radiation Monitoring System, Rev. 15, 8/14/85.

9. SI-204 Functional Test for the Radiation Monitoring System, Rev. 15, 8/14/85.

10. SI-205 Channel Calibration for Radiation Monitoring Systems, Rev. 11, 7/16/85.

b. The inspector discussed TS ventilation testing procedures in detail with cognizant licensee representatives. The inspector noted that in accordance with current plant technical specifications laboratory analysis of representative ventilation system carbon samples for methyl iodide retention is required to meet the testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978. The documented testing criteria (ANSI 510-1975) require testing at a temperature of 80°C and at a relative humidity of 95%. The inspector informed licensee representatives that for these test specifications organic contaminants may be removed, and the charcoal effectively regenerated, thus resulting in erroneously high methyl iodide efficiency ratings. The inspector stated that the most recent standard, ANSI 510-1980, references ASTM D3803, Radioiodine Testing of Nuclear-Grade Gas-Phase Adsorbents, which is now the recommended test methodology. The inspector informed licensee representatives that testing of carbon for methyl iodide retention should be conducted in accordance with this procedure and the test conditions selected, i.e., temperature and relative humidity, should reflect expected operational conditions for the individual ventilation systems. Licensee representatives informed the inspector that they would evaluate the new

testing methodology for each TS ventilation system. The inspector informed licensee representatives that this area would be considered an inspector followup item and would be reviewed during a subsequent inspection (50-327/86-02-01, 50-328/86-02-01).

No violations or deviations were identified.

6. Records and Reports (84723, 84724)

a. The inspector reviewed selected portions of the following records:

1. 1985 - 1986 Chemistry Trend Charts (Units 1 & 2) for the following chemical and radiochemical parameters: Chloride, Fluoride, Boron, Silica, pH, Specific Conductivity, Gross Activity, I-133.

2. Ventilation Test Performance Results of HEPA and Carbon Bed Filters for the Auxiliary Building Gas Treatment System and Control Room Emergency Air Cleanup System (January 1983 - January 1986) for the following surveillance tests:

   a. Visual Inspection
   b. HEPA Filter Leak Test
   c. Air Velocity Test
   d. Charcoal Bed Methyl Iodide Retention Test
   e. Charcoal Bed Penetration Test
   f. Delta Pressure Test.

3. Liquid Radiation Monitor Monthly and Quarterly Performance Checks and 18 month Calibrations (1984 - 1986) for the following:

   a. Liquid Radwaste Monitor R-90-122
   b. Turbine Building Sump R-90-212
   c. Condensate Demineralizer Lines R-90-225
   d. Auxiliary Building Noble Gas Monitor R-90-101B
   e. Service Building Noble Gas Monitor R-190-132B
   f. Containment Building Purge R-90-130

The inspector reviewed selected surveillance tests with cognizant individuals. Tests were conducted within the required intervals and test results were adequate.

b. TS 6.9.1.8 requires radioactive effluent release reports covering operation of the unit during the previous six months of operation to be submitted within 60 days after January 1 and July 1 of each year. TS 6.9.1.9 requires the content and format of the reports to follow the guidance of Regulatory Guide 1.21, and also requires the radioactive effluent release report submitted 60 days after January 1 of each year to include an assessment of radiation doses due to the radioactive liquid and gaseous effluents released from the unit or station during the previous calendar year. The inspector reviewed the following reports:

1) Effluent & Waste Disposal Semiannual Report, Supplemental Information, First Half 1985.

2) Effluent & Waste Disposal Semiannual Report, Supplemental Information, Second Half 1984.

3) Effluent & Waste Disposal Semiannual Report, Supplemental Information, First Half 1984.

4) Effluent & Waste Disposal Semiannual Report, Supplemental Information, Second Half 1983.

5) Effluent & Waste Disposal Semiannual Report, Supplemental Information, First Half 1983.

6) Radiological Impact Assessment, Sequoyah Nuclear Plant, January - December 1984.

The inspector discussed the Effluent Release reports with licensee representatives. Cognizant licensee representatives stated that there were no abnormal releases for the 1985 second half reporting period. For 1984, the total dose to the maximum exposed individual was calculated to be 1.1 mrem. The inspector noted there were no significant trends between successive years (1983 - 1985) for the following: abnormal releases, 1-2 per year; number of releases, liquid (approximately 200 - 350 per 6 months) and gases (approximately 350 - 450 per 6 months); gaseous activity released, approximately 2 to 4E+3 curies Noble Gas per 6 months, 2E-4 to 2E-3 curies Iodine per 6 months, and 7E+1 to 6E+2 curies tritium per 6 months. In addition, the inspector discussed the four liquid radwaste effluent release pathways monitored for effluent accountability (Liquid Radwaste, Condensate Demineralizer, Turbine Building Sump, Steam Generator Blowdown). The inspector noted that wastes from the condensate demineralizer (CD) radwaste is batched released normally to the Cooling Tower BlowDown (CTBD) system. However, low level CD waste (less than 0.2 MPC) can be released to the Turbine Building Sump (TBS). Prior to entering the TBS, a composite sample is made of the CD effluent. The inspector noted that the release from the TBS also is grab sampled and thus provides the potential for remeasurement of effluents from the CD system thereby resulting in an overestimation of nuclide releases as reported in the Semiannual reports. Licensee representatives agreed to evaluate this area.

The inspector also discussed with licensee representatives reporting requirements for the Semiannual Effluent Release Report as specified by TS and Regulatory Guide (RG) 1.21. The inspector noted that RG 1.21 specifies that the term, not detected, should not be used in reports. The inspector noted that this item also was identified in corporate audit report CH-8300. Licensee representatives provided a plant Technical Specification interpretation of TS 6.9.1.9 and also informed the inspector that guidance regarding this reporting requirement was

documented in a previous inspection report (50-327/80-08 and 50-328/80-05). The licensee informed the inspector that a decision was made to report 0.00E0 for, less than, values in the Semiannual Effluent Release reports. The inspector stated that the licensee's TS interpretation and previous inspection report would be reviewed by Region II management for detailed evaluation and interpretation.

In addition, the inspector noted that the TS required dose assessments were being provided in a separate report issued by the TVA Western Area Radiological Laboratory (WARL) Radiological Health group. The inspector stated that this report should be provided and issued with the required TS report and not as a separate document. Licensee representatives agreed to evaluate the inspector's comment.

The inspector informed licensee representatives that the format of the effluent release reports, i.e., reporting of 0.00 E0 for, less than, values would be considered an unresolved item pending further review by Region II management. On January 16, 1986, NRC Region II representatives informed licensee representatives by telephone that NRC Region II management did not agree with the Sequoyah Nuclear Plant TS interpretation of TS 6.9.1.9. The inspector informed licensee representatives that following review and discussion of RG 1.21, TVA TS interpretation of TS 6.9.1.9, and review of a previous NRC guidance (IE report 50-327/80-08, 50-328/80-05) that (1) whenever a nuclide is detected in an effluent sample, it will be reported, even if the sensitivity limit is below required TS limits and (2) whenever an analysis for a nuclide yields a, less than, number, that less than number will not be used in quantifying the release nor in calculating doses from the effluents. However a reference to a range of detection limits, i.e., the less than number, will be contained within the report. The inspector informed licensee representatives that proposed changes to the semiannual radiological effluent reports would be considered an inspector followup item (50-327/86-02-02, 50-328/86-02-02).

No violations or deviations were identified.

7. Inspector Followup Items (92701)

a. (Closed) 50-327/84-28-01, 50-328/84-28-01 IFI: Provide Evaluation of Licensee Initiated Major Changes to Liquid Radwaste System Per TS 6.15.1. The inspector reviewed FSAR changes for the Condensate Demineralizer Waste Evaporator (CDWE) system and the required 10 CFR 50.59(a) safety evaluation of the documented changes. This safety evaluation was documented in the Sequoyah Nuclear Plant Monthly Operating Report - July 1985. The required safety evaluation was adequate.

b. (Open) 50-327/85-38-01, 50-328/85-38-01 IFI: Review of LLD Calculation Formula for Environmental Samples. The licensee was not prepared for NRC review regarding this item.

c. (Open) 50-327/85-38-02, 50-328/85-02 IFI: Improved Availability of Meteorological Instrumentation Calibration Records on Site. The licensee was not prepared for NRC review regarding this item.

d. (Open) 50-327/85-38-03, 50-328/85-38-03 IFI: Improved Surveillance of all Environmental Monitoring Stations to Ensure Adequate Operability. The licensee was not prepared for NRC review regarding this item.