



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

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Report Nos.: 50-327/92-28 and 50-328/92-28

Licensee: Tennessee Valley Authority
3N 38A 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 1 and 2

Inspection Conducted: August 12-14, 1992

Inspector: W. B. Gloersen 9/15/92
Date Signed

Approved by: T. R. Decker 9/15/92
Date Signed
T. R. Decker, Chief
Radiological Effluents and Chemistry
Section
Radiological Protection and Emergency
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Division of Radiation Safety and Safeguards

SUMMARY

Scope:

This routine, unannounced inspection was conducted in the areas of audits, solid radioactive waste management, shipping, and transportation.

Results:

The licensee's audits and activities in the area of radioactive materials control were technically sound, thorough, detailed and well documented. The licensee's program for processing, packaging, storing and shipping radioactive solid wastes was effective. There have been no shipping violations identified during the last 12 months. The specialists who performed radioactive waste shipments were adequately trained and performed their duties competently. Daily solid waste generation has been reduced through aggressive management attention and the bulk material permit program which basically limited the material entering the radiation controlled area (RCA).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *R. Beecken, Plant Manager
- *T. Flippo, Site Quality Manager
- J. Hamilton, Manager, Quality Auditing and Monitoring
- *C. Kent, Radiological Controls Manager
- *P. Lydon, Operations Manager
- D. Nichols, Health Physics (HP)/Radwaste Specialist
- *J. Osborne, Radwaste Supervisor
- J. Reagan, HP/Radwaste Specialist
- *R. Rogers, Acting Technical Support Manager
- *J. Smith, Licensing
- *R. Thompson, Compliance Licensing Manager
- K. Walker, Quality Assurance (QA) Specialist
- *C. Whittemore, Licensing Engineer
- J. Wilson, Vice President, Sequoyah Site

Nuclear Regulatory Commission

- W. Holland, Senior Resident Inspector
- *S. Shaeffer, Resident Inspector

*Attended exit meeting on August 14, 1992

2. Audits (86750)

Technical Specification (TS) 6.5.2.8 requires that audits of unit activities be performed under the cognizance of the Nuclear Safety Review Board (NSRB) in the following areas: (1) the radiological environmental monitoring program and the results thereof at least once per 12 months; (2) the Offsite Dose Calculation Manual and implementing procedures at least once per 24 months; (3) the Process Control Program and implementing procedures for solidification of radioactive wastes at least once per 24 months; and (4) the performance of activities required by the Quality Assurance Program to meet the criteria of Regulatory Guide 4.15, December 1977 or Regulatory Guide 1.21, Rev. 1, 1974, at least once per 12 months.

The inspector reviewed the following audit reports and assessments:

SQA92207, Fuel Design/Handling, Special Nuclear Materials, and Radioactive Material Management, July 10, 1992

- ° Quarterly Quality Assurance Assessments of Licensee Performance Areas (Radiological Controls) - 1992
- ° 1992 Sequoyah Nuclear Plant Self-Assessment- solid radioactive waste controls and radioactive waste minimization.

The above audits assessed the adequacy and effectiveness of radioactive materials management and packaging and shipping of radioactive waste and radioactive material. The audits covered the areas specified in TS 6.5.2.8. In general, the audit was thorough, detailed, and well documented. The areas noted above were assessed with satisfactory performance and licensee management made adequate commitments to correct the few deficiencies identified.

No violations or deviations were identified.

3. Changes in the ODCM, PCP, and Radwaste System Design and Operation (86750)

The inspector discussed with the licensee any changes in the radwaste organization, personnel, facilities, equipment, program, and procedures since the last inspection. Basically, there were no significant changes other than minor procedural revisions. The following procedures were reviewed:

- ° TI-61, Waste Classification, Scaling Factors, and Quantity Determination, Revision 17, June 16, 1992
- ° RHSI-1, Packaging Dry Active Waste in Drums and Boxes, Revision 4, December 21, 1989
- ° RHSI-3, Shipment of Radioactive Waste other than DAW to Chem-Nuclear Systems, Inc., Revision 12, March 18, 1992
- ° RHSI-4, Shipment of Radioactive Material (RAM), Revision 6, March 23, 1992
- ° RHSI-6, Bead Resin/Activated Carbon Dewatering Procedure for CNSI 14-2156 or Smaller liners Prior to Shipment, Revision 5, May 26, 1992
- ° Radioactive Material Shipment Manual (RMSM), Volumes 1-3, Revision 32, July 31, 1992

The inspector discussed the following comments regarding the procedures noted above with licensee representatives:

- TI-61 should include guidance on the frequency for sampling the various waste streams and collecting representative samples for proper waste characterization.
- RHSI-1 should define the terms "combustible" and "noncombustible" materials in the definition section and include examples of each.
- RHSI-3 and/or RHSI-6 should provide guidance on verifying the volume or fill level of the resin in the high integrity container for accurate curie determinations.

No violations or deviations were identified.

4. Training and Qualifications of Personnel (86750)

10 CFR 19.12 requires the licensee to instruct all individuals working or frequenting any portions of the restricted areas in the health protection aspects associated with exposure to radioactive material or radiation, in precautions or procedures to minimize exposure, and in the purpose and function of protection devices employed, applicable provisions of the Commission Regulations, individuals responsibilities and the availability of radiation exposure data.

The inspector reviewed the qualifications, training, and experience of selected personnel responsible for the processing, storage and shipping of low level radwaste and radioactive materials. It was noted that radwaste specialists received periodic training in DOT/NRC regulations, waste license burial requirements, and operating procedures for the transfer, packaging, and transport of radioactive material. The last training workshop was provided by a waste processing contractor in September 1991. All three of the licensee's qualified radwaste specialists attended this three day training course and passed with at least an 80% grade on the examination. In addition, one of the radwaste specialists attended the EPRI/ASME Low-Level Radwaste Management Workshop held in July 1992. The inspector also noted that radwaste personnel were knowledgeable in the specialized computer software program (RADMAN) in waste classification, characterization, and radioactive materials shipments (RAMS ?).

The inspector also reviewed the licensee's qualification program for radwaste specialists as described in RHSI-11, Radwaste and Radioactive Material Shipment Personnel Qualification, Revision 0 December 11, 1989. The qualification procedure addressed the requirements of NRC Bulletin 79-19, Packaging of Low-level Radioactive Waste for Transport and Burial, and in particular, the initial and periodic retraining for personnel involved in the transfer, packaging, and transport of radioactive waste and material. This qualification program provided to radwaste specialists covered the following areas: (1) radioactive material processing, packaging and shipping; (2) packaging, loading, and verification/certification of radwaste package contents; and (3) computer utilization for shipment calculations.

The inspector noted that the licensee did not have a current copy of 49 CFR 100-199. The copy on hand was dated January 1990. It was noted however, that the licensee had placed an order with Regulations Management Corporation for one copy of the Hazardous Materials Regulations 49 CFR 100-180 and 350-399 to ensure that a current copy of the DOT regulations would be available to the Radwaste Specialists.

No violations or deviations were identified.

5. Solid Radwaste Management and Storage (84750, 86750)

The inspector and a licensee representative discussed the solid radioactive waste management program, including radioactive waste storage, minimization, and processing.

The major accomplishments of the solid radwaste volume reduction program were as follows: (1) improved volume reduction techniques; (2) improved control of materials into the RCA; (3) implementation of reusable materials; (4) implementation of incinerable materials; (5) effective use of containments (6) improved work site ownership; and (7) established aggressive goals and communication plan. The solid radwaste volume reduction plan was also successful in reducing the volume of radwaste generated, as demonstrated when comparing the waste generated during the Unit 1 cycle 5 (U1C5) and Unit 2 cycle 5 (U2C5) outages. Although the U2C5 outage involved a larger work scope than U1C5 outage, roughly half of the amount of solid radwaste was generated during the U2C5 outage (15,204 cubic feet vs. 31,290 cubic feet). Since 1988, the licensee has significantly reduced

the volume of solid radwaste buried. The following table illustrates this decreasing trend:

<u>Year</u>	<u>Volume buried per reactor unit (cubic meters)</u>
1988	309
1989	231
1990	130
1991	73
1992 (ytd)	57

The decreasing trend noted above can be partly explained by improved volume reduction techniques by the waste processor, such as, super compaction and incineration; and proper segregation of the materials suitable for compaction and/or incineration by the waste generator. It should also be noted that the licensee was well below its 1992 goal for solid radwaste buried which was 95 cubic meters per reactor unit.

In addition, the inspector examined the following radioactive materials storage/staging areas: (1) DAW storage yard, (2) railroad bay area, and (3) area behind the new makeup water treatment plant. The containers in the areas noted above were properly labeled; and the labels were clearly visible and legible. The licensee was in the process of sorting through the contaminated tools and equipment to determine which items could be recycled.

No violations or deviations were identified.

6. Shipping of Low-Level Wastes for Disposal, and Transportation (86750)

10 CFR 20.311 (b) requires each shipment of radioactive waste to a land disposal facility to be accompanied by a shipment manifest that indicates as completely as practicable; a physical description of the waste; the volume; the radionuclide identity and quantity; the total radioactivity; and the principal chemical form.

10 CFR 71.5 requires that licensees who transport licensed material outside the confines of its plant or other place of use, or who delivered licensed material to a carrier for transport, shall comply with the applicable requirements of the regulations appropriate to the mode of transport of the Department of Transportation in 49 CFR Parts 170 through 189.

49 CFR 172.203 (d) (i) requires, in part, that a shipping paper contain a 24-hour emergency number, as prescribed in subpart G of Part 172 of this subchapter.

The inspector reviewed selected records of radioactive waste and radioactive materials shipments performed from November 1991 to July 1992. The shipping manifests examined were consistent with the 49 CFR requirements. The radiation and contamination survey results were within the limits specified for the mode of transport and shipment classification and the shipping documents were being completed and maintained as required.

In addition, the inspector reviewed the shipping records for 1991 and 1992 associated with radioactive material shipments made in DOT Spec 7A containers. The inspector reviewed the records of the licensee's determinations for selected packages and determined that they had been fabricated in accordance with an approved design as specified in DOT specifications. The inspector noted from past records that the licensee maintained on file for at least one year after each shipment the supporting documentation regarding the package specifications as required by 49 CFR 173.415(a). In addition, the inspector verified that for NRC-certified packagings used by the licensee the Certificate of Compliance (COC) No. 6568 for package Model No. LL-60-150 was maintained and up-to-date. The inspector reviewed the procedures, license, and safety analysis report for the package noted above and identified no apparent problems.

The inspector also reviewed the waste shipment manifests noted above to determine compliance with the 24-hour emergency telephone requirements specified in 49 CFR 172.203(d). Based on a review of several waste shipment manifests, the inspector noted that the 24-hour emergency response telephone number was correctly listed and clearly visible on the waste manifest and the emergency information sheet.

No violations or deviations were identified.

7. Low-Level Radioactive Waste Storage Facilities (65051, 86750)

The inspector and licensee representatives toured the licensee's low-level radioactive waste storage facility (LLRWSF) which was located outside of the protected area, but in a remote location in the owner controlled area. The access to the facility was restricted by a locked fence. The LLRWSF consisted of four concrete modules. There were 20 cells per module. The facility's total storage capacity was approximately 29,000 cubic feet. The licensee was planning to examine the modules for material condition in preparation for future use. Although there was no formal schedule on facility activation, it was noted that following a 10 CFR 50.59 evaluation, the modules would be used for

interim storage of radioactive waste with a storage capacity of five to seven years.

No violations or deviations were identified.

8. Exit Meeting

The inspector met with licensee representatives indicated in Paragraph 1 at the conclusion of the inspection on August 14, 1992. The inspector summarized the scope and findings of the inspection. The inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any proprietary documents or processes during this inspection. Dissenting comments were not received from the licensee.