



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

FEB 04 1993

Report Nos.: 50-259/93-01, 50-260/93-01, and 50-296/93-01

Licensee: Tennessee Valley Authority
3B Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Docket Nos.: 50-259, 50-260,
and 50-296

License Nos.: DPR-33, DPR-52,
and DPR-68

Facility Name: Browns Ferry 1, 2, and 3

Inspection Conducted: January 11-15, 1993

Inspector:

Thomas R. Decker, Jr.
D. W. Jones

2/4/93
Date Signed

Approved by:

Thomas R. Decker
T. R. Decker, Chief
Radiological Effluents and Chemistry Section
Radiological Protection and Emergency Preparedness Branch
Division of Radiation Safety and Safeguards

2/4/93
Date Signed

SUMMARY

Scope:

This routine, announced inspection was conducted in the area of transportation of radioactive material.

Results:

No violations or deviations were identified.

The licensee had implemented effective quality assurance and management control programs for packaging, preparation, and transport of radioactive material (Paragraph 2).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *S. Austin, Engineer, Site Licensing
- *M. Bajestani, Manager, Technical Support
- *R. Baron, Manager, Site Quality
- *G. Bugg, Manager, Radwaste
- *J. Bynum, Vice President, Nuclear Operations
- *J. Corey, Manager, Radiation Control
- J. Harris, Radwaste Controller
- G. Knight, Radwaste Controller
- *J. Rupert, Manager, Engineering and Modifications
- *J. Sabados, Manager, Chemistry and Environmental
- *P. Salas, Manager, Compliance and Licensing
- *J. Scalice, Plant Manager
- K. Schaus, Audit Specialist, Quality Assurance
- J. Wallace, Engineer, Site Licensing
- *O. Zeringue, Vice President

Other licensee employees contacted included engineers, technicians, and administrative personnel.

Nuclear Regulatory Commission

- *J. Munday, Resident Inspector
- R. Musser, Resident Inspector
- *C. Patterson, Senior Resident Inspector

*Attended exit interview.

2. Transportation of Radioactive Material (86740 and 86750)

10 CFR 71 established the requirements for packaging, preparation for shipment, and transportation of licensed material. 10 CFR 71.5 required the licensee to comply with the applicable requirements of the Department of Transportation (DOT) in 49 CFR Parts 170 through 189 when transporting licensed material outside of the confines of the plant or other place of use, or when delivering licensed material to a carrier for transport. 10 CFR 71 Subpart H established the quality assurance (QA) program requirements applicable to transportation of radioactive materials. 10 CFR 20.311 specified the requirements for control of transfers of radioactive waste intended for disposal at a land disposal facility and established a manifest tracking system. 10 CFR 61.55 and 61.56 established the requirements for classification and characterization of radioactive waste shipped to a near-surface disposal site.



a. Management Controls

10 CFR 71.103 required the licensee to establish a QA program which clearly establishes and delineates in writing the authority and duties of persons and organizations performing safety-related functions of structures, systems, and components. The inspector reviewed Section 4.0 of "Tennessee Valley Authority (TVA) Quality Assurance Program Description for Radioactive Material Shipping Packages Licensed Under 10 CFR 71," Revision 5, and determined that it established the licensee's corporate policy regarding organization structure and functional responsibility assignments for quality-related activities involving transport of radioactive materials. Those policies were implemented at the facility through Section I-E of the "Radioactive Materials Shipment Manual," Revision 32, and Sections 3.0 and 4.0 of procedure RWI-001 "Administration of the Radioactive Material and Radwaste Package and Transportation Program," Revision 4.

10 CFR 71.111 and 71.113 required the licensee to prescribe activities affecting quality by documented instructions, procedures, or drawings and to establish measures which assure that those documents, including changes thereto, were reviewed for adequacy and approved for release by authorized personnel. Section 6.0 of the above referenced transportation quality assurance plan (TQAP) described the licensee's system of controls for procedures used for transportation related activities. Those procedures were maintained in the "Radwaste Instruction Procedure Manual." The inspector reviewed the licensee's records for five of the 27 procedures contained in that manual and determined that they had been approved for use by licensee management and controlled in accordance with the TQAP.

b. Indoctrination and Training Program

10 CFR 71.105(d) required the licensee to provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained. Section 11.0 of the TQAP established the licensee's indoctrination and training program which was implemented through Section II-M of the "Radioactive Material Shipment Manual (RMSM)." The RMSM provided a detailed description of the training requirements for personnel involved in transportation of radioactive materials. The inspector reviewed training records for selected personnel who were performing those functions and determined that they had been trained in accordance with the RMSM.



c. Audit Program

10 CFR 71.137 required the licensee to perform comprehensive, planned, and periodic audits to verify compliance with all aspects of the QA program and to determine the effectiveness of the program. The audits were required to be performed in accordance with written procedures by appropriately trained personnel not having direct responsibilities in the areas being audited. The audit results were required to be documented and reviewed by management having responsibility in the area audited. Followup action was required to be taken for identified deficiencies. Section 12.0 of the TQAP and Section III.J.4 of the RMSM provided general descriptions of the licensee's audit program. The inspector noted that the audit program descriptions in the TQAP and RMSM lacked specificity as compared to the explicit program requirements delineated in 10 CFR 71.137 but implementing procedures provided further details regarding program requirements. QA procedure QMP 118.4, "Audit Modules," provided specific key objectives of the audit program and specified an annual audit frequency for radioactive materials management which included transportation related activities. The inspector reviewed Audit Report No. BFA92208, "Radioactive Material Management," which was for the most recent audit of transportation activities. The audit was conducted during April 1992 by the Site QA organization. The scope of the audit included: preparation and shipment of solid radwaste; radwaste processing; receipt, use and storage of by-product and source material; and relevant issues identified during recent similar audits at other facilities. No significant discrepancies were identified during the audit. Four minor deficiencies were identified and immediately corrected. The audit team concluded that the Radioactive Materials Management program had been effectively implemented. The inspector determined that the audit had been performed in accordance with the above procedure and that the results had been promptly forwarded to licensee management for review.

d. Quality Assurance Program

10 CFR 71.101(c) required the licensee to obtain NRC approval of the QA program prior to the use of any package for shipment of licensed material subject to 10 CFR 71 Subpart H. The inspector determined that the licensee's QA program "Quality Assurance Program Description for Radioactive Material Shipping Packages Licensed Under 10 CFR 71," Revision 5, was approved by the NRC Division of Safeguards and Transportation. "Quality Assurance Program Approval for Radioactive Material Packages No. 0227," Revision 8 was issued on June 27, 1991.



e. NRC Certificate of Compliance (COC) Packagings

10 CFR 71.12(c) required the licensee to maintain copies of certificates of compliance for NRC approved packages used for transport of radioactive material. During the week of this inspection the licensee prepared and shipped a cask containing spent resin to the Barnwell, SC land disposal facility. The vendor supplied cask was an NRC approved package. The inspector determined that the licensee possessed a copy of the COC for the Model No. CNS 14-195-H package which was used to transport the spent resin to the disposal facility.

f. Registration of Use of NRC Approved Packages

10 CFR 71.12(c)(3) required the licensee to submit to the NRC, prior to the first use of an NRC approved package, the licensee's name and license number and the package identification number specified in the package approval. The inspector reviewed an NRC issued letter dated September 18, 1978, which indicated that the licensee was a registered user of the above cask used for shipments of spent resin.

g. Preparation of Packages for Shipment

10 CFR 71.85 and 71.87 required the licensee to perform preliminary determinations, prior to the first use of any packaging, and routine determinations, prior to each shipment, that the packaging has no physical defects which could significantly reduce the effectiveness of the packaging and that the package meets the applicable packaging and license requirements. The inspector discussed preparation of packages for transport with the licensee. The licensee indicated that vendor services were used for preparation and transport of radwaste such as spent resin. The vendor also certified that the high integrity container (HIC) and the cask provided to the licensee were in compliance with the COC for the package. Each shipment was pre-arranged with the vendor and the disposal facility and the shipping containers were provided on an as needed basis. The inspector also reviewed the following procedures used by the licensee in preparing the above cask for transport.

- RWI-123, "Use of Casks," Revision 2
- TR-OP-009, "Handling Procedure for Transport Cask Number CNS-14-195H Certificate of Compliance Number 9094," Revision H

The inspector determined that both procedures, one of which was a vendor supplied procedure, included checklists for assuring that the HIC and cask designated for a shipment were used. The inspector also verified that the checklists were completed for the package of spent resin shipped during the week of this inspection.



h. Package Marking and Labeling

49 CFR 172.300 and 172.400 required the licensee to mark and label each package of hazardous material offered for transport in the manner specified in 49 CFR 172 Subparts D and E.

49 CFR 173.425(b) exempted packages containing low specific activity (LSA) material from specified sections of the above marking and labeling requirements and specified that the packages be marked "Radioactive-LSA." The inspector reviewed Section II.1.5 of the RMSM and procedure RWI-123 and determined that they included provisions for marking casks containing LSA as required. The inspector also verified by direct observation that the cask used for the spent resin shipped during the week of this inspection was marked in accordance with the above procedure:

i. Radiation Monitoring

10 CFR 71.87(i) and (j), 49 CFR 173.475(i), 49 CFR 173.441, and 49 CFR 173.443 delineated the limits for external radiation levels and for removable surface contamination levels of packages offered for shipment. The inspector reviewed RWI-123 and determined that it included provisions for performing the required surveys and for assuring that the radiation and contamination limits were met for each cask offered for shipment. The inspector reviewed the licensee's records for the above shipment of spent resin. Those records indicated that the required surveys had been performed and the radiation and contamination limits had been met.

j. Shipping Paper Documentation

49 CFR 172.200 required the licensee to prepare shipping papers describing hazardous materials offered for transport in the manner specified in 49 CFR 172 Subpart C. 10 CFR 20.311(d)(4) required the licensee to prepare shipping manifests for each shipment of radioactive waste to a licensed land disposal facility such that they meet the requirements of 10 CFR 20.311. The inspector determined that the RMSM and procedure RWI-123 included provisions recording the required information on the shipping manifests. The inspector also reviewed the shipping papers for the above shipment of spent resin and determined that they had been prepared in accordance with the above procedure.

k. Drivers Instructions for Exclusive Use Shipments

49 CFR 173.441(c) and 173.425(b)(9) required the licensee to provide specific written instructions for maintenance of the exclusive use shipment controls to the carrier of packages of radioactive material consigned as exclusive use. Those instructions were required to be included with the shipping paper information. The inspector determined that procedure RWI-123



included provisions for providing drivers with the required instructions and that the shipping papers for the above referenced waste shipment included a copy of those instructions.

1. Advance Notifications

10 CFR 71.97 required the licensee to make prior notification to the governor of a State whenever specified packages and quantities of licensed material was being transported to, through, or across the State's boundaries to a disposal site. The inspector determined that RMSM and shipping procedures included provisions for making the required advance notifications and that the licensee's records for the above referenced waste shipment included copies of the forms used to make the required notifications.

m. Records

10 CFR 71.91(a) required the licensee to maintain records of each shipment of licensed material for a period of three years after shipment. The inspector reviewed selected shipping records and determined that the required information was being retained as required.

n. Radioactive Waste Classification and Characterization

10 CFR 20.311 required the licensee to prepare all radioactive waste shipped to a licensed land disposal facility or waste collector such that the waste is classified according to 10 CFR 61.55 and meets the waste characteristics requirements in 10 CFR 61.56. The licensee classified and characterized waste shipments through the use of the RADMAN computer software. Radionuclide concentrations and physical description data for packaged waste were input to the computer and the program generated a manifest form. The printed manifest form included the information required to be included on waste manifests and the certifications that the waste had been properly classified, described, packaged, marked, and labeled and in proper condition for transport in accordance with applicable State and federal regulations. The inspector observed the preparation of the manifest for the above shipment of spent resin and determined that the waste was properly classified and characterized.

Based on the above reviews and observations, it was concluded that the licensee had implemented effective QA and management control programs for packaging, preparation, and transport of radioactive material.

No violations or deviations were identified.



3. Exit Interview

The inspection scope and results were summarized on January 15, 1993, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results listed above. No dissenting comments were received from the licensee. Proprietary information is not contained in this report.