

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-445/95-26
50-446/95-26

Licenses: NPF-87
NPF-89

Licensee: TU Electric
Energy Plaza
1601 Bryan Street, 12th Floor
Dallas, Texas

Facility Name: Comanche Peak Steam Electric Station, Units 1 and 2

Inspection At: Glen Rose, Texas

Inspection Conducted: October 2-6, 1995

Inspector: J. B. Nicholas, Ph.D., Senior Radiation Specialist
Plant Support Branch

Approved: Blaine Murray
Blaine Murray, Chief, Plant Support Branch

11/20/95
Date

Inspection Summary

Areas Inspected (Units 1 and 2): Routine, announced inspection of the solid radioactive waste management and transportation of radioactive materials programs.

Results (Units 1 and 2):

Plant Support

- The solid radioactive waste management and transportation of radioactive materials programs were properly implemented. The organizational structure and staffing of the radiation protection department and radioactive materials control group met station requirements. The licensee had experienced a very low turnover of personnel and was fully staffed with experienced personnel (Section 1).

- A good training program for the radioactive materials control group personnel was implemented. An adequate number of radioactive materials control group personnel were trained and qualified to conduct the solid radioactive waste management program and perform shipments of radioactive waste and materials (Section 2).
- A good quality assurance audit program of the radioactive waste and process control program was implemented. Performance based quality assurance surveillances were performed of the solid radioactive waste management and transportation of radioactive materials programs. The quality assurance surveillance program was considered a strength (Section 3).
- An effective solid radioactive waste management program was implemented. Excellent ALARA procedures implemented by the radioactive materials control group personnel. Excellent procedures that addressed processing, packaging, handling, classification and characterization, and transporting of radioactive waste and materials were maintained. The licensee was implementing an excellent radioactive waste reduction program; analyzed solid radioactive waste streams for the determination of scaling factors; and had reviewed, planned, and provided for interim storage of their radioactive waste on site (Sections 4.1 - 4.4).
- The quality assurance program for radioactive material packages was NRC approved. Excellent implementing procedures were in place and followed that addressed selection of packages, preparation of packages for shipment, and delivery of the completed packages to the carrier. The solid radioactive waste transportation program was implemented in accordance with regulatory requirements. Personnel responsible for the shipment and transportation of radioactive waste and/or materials were knowledgeable of the regulatory requirements and the burial site license conditions. Shipments of radioactive waste and/or materials met applicable transportation requirements (Sections 5.1 - 5.5).
- The 1994 Annual Radioactive Effluent Release Report was submitted in a timely manner and contained all the required information presented in the recommended format (Section 6).

Summary of Inspection Findings

There were no inspection or open item findings.

Attachment:

- Attachment - Persons Contacted and Exit Meeting

DETAILS

1 ORGANIZATION AND MANAGEMENT CONTROLS (86750)

The inspector reviewed the organization and staffing of the radiation protection department to determine agreement with commitments in the Updated Safety Analysis Report and compliance with the requirements in Technical Specification 6.2.

The inspector reviewed the organizational structure and staffing of the radiation protection department and, specifically, the radioactive materials control group which was responsible for the management and implementation of the solid radioactive materials control and transportation programs. The inspector reviewed the staffing changes in the radioactive materials control group since the previous NRC inspection of this area performed during March 1994. The changes included the replacement of the radioactive materials control group supervisor, as a result of the reorganization of the radiation protection department in July 1995, and the replacement of two health physics technicians in April 1995. The personnel changes during the past 1½ years had no negative effect on the performance of the solid radioactive materials control and transportation programs. The organizational structure and staffing of the radiation protection department was as defined in the Updated Safety Analysis Report and Technical Specifications. The radioactive materials control group that included a supervisor, two lead health physics technicians, and eight health physics technicians, was fully staffed. The radioactive materials control group personnel were trained, qualified and were responsible for performing the required solid radioactive waste management and transportation of radioactive materials activities in accordance with the Offsite Dose Calculation Manual, Process Control Program, and NRC and Department of Transportation requirements. The inspector interviewed the radioactive materials control group supervisor and several of the radioactive materials control group health physics technicians and determined that they were familiar with the requirements of the solid radioactive waste management and transportation of radioactive materials programs and maintained a high level of performance.

Nuclear Engineering and Operations Policy Statement 118, "Radiological Controls and Radioactive Waste Management," station administrative procedures, and radiation protection departmental procedures were reviewed for the assignment of responsibilities for the management and implementation of the solid radioactive waste management and transportation of radioactive materials programs. The inspector determined that the procedures were of good quality and addressed appropriate regulatory requirements. The inspector determined that the duties and responsibilities specified in the station's procedures were being implemented, and that the solid radioactive materials control group activities were well managed.

2 TRAINING AND QUALIFICATIONS (86750)

The inspector reviewed the training and qualification programs for the radioactive materials control group personnel responsible for implementing the solid radioactive waste management and transportation of radioactive materials programs to determine agreement with commitments in the Updated Safety Analysis Report and compliance with the requirements in Technical Specifications 6.3 and 6.4.

The inspector discussed the radiation protection technician training and qualification programs for the radioactive materials control group personnel with the radiation protection training coordinator and the radiation protection training instructor. The inspector reviewed the radiation protection technician training and qualification guide, radioactive material control group qualification card, selected on-the-job-training cards, training lesson plans, and the training and qualification matrix for the radioactive materials control group personnel. The licensee conducted its own annual radwaste training course based on NRC and Department of Transportation regulations and requirements. The inspector reviewed the lesson plans for the licensee's radioactive waste course on regulations and requirements and found them comprehensive, thorough, and of high quality. It was determined that the licensee's training program was implemented and documented in accordance with station procedures.

The inspector reviewed the qualifications of the present radioactive materials control group personnel. It was determined that nine of the eleven current radioactive materials control group personnel met the qualification requirements of ANSI-N18.1-1971. It was noted that two of the health physics technicians had only been assigned to the radioactive materials control group for approximately 5 months and were still in the process of completing their qualification cards for shipment of radwaste/radioactive materials. It was determined that the licensee had an adequate qualified staff to meet the radioactive materials control group staffing requirements.

The inspector reviewed individual staff training records for the radioactive materials control group supervisor and the health physics technicians assigned to the radioactive materials control group. Based on the review, it was determined that the radioactive materials control group supervisor and the health physics technicians currently responsible for the processing and transportation of radioactive materials had completed the required training to perform their assigned duties. It was determined that all the radioactive materials control group personnel had completed the regulatory requirement training during the past year and were knowledgeable of the applicable NRC, Department of Transportation, and burial site license requirements.

3 QUALITY ASSURANCE PROGRAM (86750)

The inspector reviewed the quality assurance audit and surveillance programs regarding the solid radioactive waste management and transportation of radioactive materials programs to determine agreement with the commitments in the Updated Safety Analysis Report and compliance with the requirements in Technical Specification 6.5.2.8.1.

The inspector reviewed the quality assurance audit schedules issued for 1993, 1994, and 1995. These schedules reflected a biennial audit schedule for the solid radioactive waste management and transportation of radioactive materials programs. The audit schedules indicated that the radioactive waste and process control audit was to be performed in October of the odd numbered years. The audit schedules were in compliance with the Technical Specification audit frequency requirement. The inspector reviewed the quality assurance audit plan and the qualifications of the quality assurance auditors who performed the audit of the solid radioactive waste management and transportation of radioactive materials programs.

The inspector reviewed the 1993 quality assurance audit report of the "Radioactive Waste Program" (QAA-93-128) which was conducted during the time period October 6 through December 3, 1993, during the previous inspection of this area conducted in March 1994. The audit was performed by a team of qualified personnel that included a technical specialist who was knowledgeable in radioactive waste management and transportation of radioactive materials programs. The audit was conducted in accordance with quality assurance procedures and schedules. The audit team evaluated the implementation of the solid radioactive waste management and transportation of radioactive materials programs. One deficiency was identified in the solid radioactive waste management program concerning the lack of proper labeling of stored radioactive material and equipment. Operation Notification and Evaluation Form 93-2291 was issued to document this deficiency. The inspector reviewed the corrective actions taken to resolve the audit deficiency and noted that the audit deficiency was closed. The 1993 audit of the solid radioactive waste management program was comprehensive and of good quality to evaluate the licensee's performance in implementing the solid radioactive waste management and transportation of radioactive materials programs. The audit was conducted in agreement with Updated Safety Analysis Report commitments and met Technical Specification requirements. The licensee had scheduled the next biennial audit of the radioactive waste program to be performed in October 1995.

The licensee had also conducted excellent performance based quality assurance surveillances of solid radioactive waste processing and shipping activities. The independent safety engineering group was assigned the responsibility for the administration and implementation of the quality assurance surveillance program through October 1994. Since October 1994, the nuclear overview department was assigned the responsibility for performing quality assurance surveillances. The inspector reviewed 9 independent safety engineering group field note sheets which documented the independent safety engineering group's quality assurance surveillances of the solid radioactive waste management and

transportation of radioactive materials programs activities during the time period April through September 1994. The inspector also reviewed 8 nuclear overview department evaluation reports which documented quality assurance surveillance activities of the radioactive waste management and transportation of radioactive materials programs during the time period December 1994 through August 1995. These quality assurance surveillances included direct observations and evaluations of the transfer of radioactive resin from the processing vessels to high integrity containers; the preparation of radioactive waste shipments for transportation to a burial site; and the evaluation of the effectiveness of the program for identifying, inspecting, and storing of low-level radioactive waste on site. The inspector determined that the quality assurance surveillances of the solid radioactive waste management and transportation of radioactive materials programs were thorough and technically comprehensive and were conducted in sufficient depth and frequency to evaluate the licensee's compliance with Technical Specification and process control program requirements. No deficiencies were identified during the quality assurance surveillance activities. The frequency and thoroughness of the quality assurance surveillance of the solid radioactive waste management and transportation of radioactive materials programs activities were considered a strength.

The licensee used two contractors to provide various radwaste services such as incineration, compaction, wet waste processing, solidification, and shipment of solid radioactive waste for burial after processing and volume reduction. The licensee used audits of the two contractors performed by nuclear procurement issues committee audit teams during the time periods March 22-25 and May 23-27, 1994, to evaluate the performance of the contractors to perform their respective functions and to retain their current status on the TU Electric approved vendors list. The inspector reviewed these audits performed on each of the two contractors and determined that the audits were comprehensive and satisfactory to evaluate each of the contractors' abilities to perform their contracted services. These audits were conducted on a 3-year frequency by the licensee or a representative of the licensee. The inspector verified that the licensee had also performed annual evaluations of the contractors' programs as required to retain their current status on the licensee's approved vendors list.

4 SOLID RADIOACTIVE WASTE MANAGEMENT PROGRAM (86750)

The inspector reviewed the solid radioactive waste management and transportation of radioactive materials programs to determine whether these programs met applicable regulatory requirements.

4.1 Changes to the Program

The inspector reviewed changes that had been made since the last inspection in the facilities, equipment, program, and procedures that affected the performance of the solid radioactive waste management program. The licensee had made several changes to the program since the previous NRC inspection. The licensee was using remote video equipment to monitor high radiation

exposure jobs and a robot to perform high radiation exposure tasks when possible. These program innovations were considered to be strengths and excellent as low as is reasonably achievable (ALARA) practices. Another example of good ALARA practices being implemented was that the station had significantly reduced the radiation dose to the radioactive materials control group personnel and the radwaste operations group personnel over the past 3 years by the establishment of an effective radioactive waste minimization program as well as the development and use of remote handling and monitoring equipment while performing high radiation exposure jobs. This was demonstrated by the following data: the radioactive materials control group personnel total dose was 6,282 millirem in 1992, 2,163 millirem in 1993, 1,515 millirem in 1994, and 1,971 millirem through September 1995. The licensee had also significantly reduced the radiation dose of the radwaste operations group from 2,485 millirem in 1993 to 1,401 millirem to the present time in 1995.

The licensee had revised several of the radiation protection instructions and associated data forms used by the radioactive materials control group in handling, processing, packaging, and transporting radioactive waste and materials since the previous NRC inspection. The inspector reviewed selected revised procedures and noted that they provided very detailed specific instructions for performing individual job task requirements. The procedures were easy to follow and were specifically directed toward compliance of regulatory requirements.

The licensee was implementing an excellent radioactive waste reduction program over the past 3 years. Radioactive liquid waste discharges were reduced by 50 percent from 5.5 million gallons in 1993 with one unit in operation, to 4.1 million gallons in 1994, to a projected 2.5 million gallons in 1995 with two units in operation. This reduction in radioactive liquid effluents reflected the licensee's efforts to eliminate leaks and allocate resources to modify station operations which reduced radioactive waste effluent volumes. Resin generation from the filter demineralizer system, which is used to process radioactive liquid waste, was reduced by approximately 60 percent from 472 cubic feet in 1993 to a projected 150 cubic feet in 1995.

4.2 Solid Radioactive Waste Management

The inspector reviewed the solid radioactive waste management program to determine agreement with commitments in the updated safety analysis report and compliance with the requirements of the process control program, the offsite dose calculation manual, and Technical Specification 6.13.

The licensee disposed of highly radioactive spent resin and/or spent filter cartridges by transferring the spent resin and/or the spent filter cartridges into high integrity containers and shipping the high integrity containers off site to a licensed radioactive waste burial site. The licensee was unable to ship radioactive waste for burial after July 1, 1994, when the Barnwell, South Carolina, radioactive waste burial site was closed to radioactive waste generators who were not members of the Southeastern States Radwaste Compact. The licensee's radwaste compact burial site in Texas was not ready to receive

radioactive waste for burial at that time, so the licensee stored their spent resin and spent filter cartridges in high integrity containers placed in concrete vaults stored on site. However, the Barnwell, South Carolina, radioactive waste burial site was recently opened again to receive radioactive material for disposal. The licensee was in the process of preparing several high integrity containers for shipment to Barnwell, South Carolina, for burial.

The inspector observed the licensee move a high integrity container filled with Class C dewatered spent resin from a storage vault in the services building into a Type B shipping cask on an exclusive use trailer for shipment to a radioactive waste burial site. The high integrity container contained an estimated 764 curies of spent resin, and the container's highest dose rate on contact was measured at 119 Rem per hour. Excellent ALARA procedures were implemented by the personnel performing the high integrity container transfer. The licensee conducted an excellent pre-job briefing with all personnel who were involved with the job and authorized on the Radiation Work Permit issued for the job. The licensee also conducted an effective post-job briefing with several good observations and "lessons learned" which were noted and documented for followup and future implementation.

The inspector observed the entire radioactive waste shipment activities. Extensive use of procedure checklists was noted. Quality control inspectors were present during all stages of the shipment and conducted their own inspection of the shipment and conducted an independent review of the shipping documentation. The inspector noted that the shipment was prepared, inspected, and documented by radioactive materials control group personnel and quality control inspectors in accordance with regulatory requirements.

The inspector noted that the licensee disposed of dry active waste by placing it into sea-land containers and shipping it off site to a vendor who segregated and processed it for volume reduction.

The inspector reviewed selected radioactive waste shipping manifest forms and shipping papers that accompanied each shipment of radioactive waste and determined that the completed shipping manifests reviewed complied with the requirements of 10 CFR 20.2006.

4.3 Radioactive Waste Classification, Waste Characterization, and Shipping Requirements

The inspector reviewed the licensee's program for the control, classification, characterization, and shipment of solid low-level radioactive waste and disposal site license conditions to determine compliance with the requirements of 10 CFR 20.2006, 61.55, and 61.56, and the recommendations of NRC Branch Technical Position, Revision 1, "Papers on Low-Level Radioactive Waste Classification and Waste Form."

The inspector determined the licensee had made shipments to a vendor during 1994 and 1995 of samples from specific solid radioactive waste streams for special analyses to determine scaling factors for those radionuclides which the licensee was not capable of directly measuring. The Class A waste was sampled and analyzed biennially, and the Class B waste was sampled and analyzed annually as required. The inspector reviewed the licensee's records for selected samples and analyses of solid radioactive waste streams (e.g., steam generator blowdown resin, seal injection cartridge filters, spent fuel pool filters, chemical and volume control system resin, and dry active waste) and scaling factor information generated for characterizing the solid radioactive waste prior to shipment to meet 10 CFR Part 61 requirements.

4.4 Interim Storage of Solid Radioactive Waste

As part of the licensee's long-range radioactive waste management plan, the licensee was keeping abreast of the radioactive waste burial site development in their compact and had reviewed, planned, and provided for interim storage of their radioactive waste on site for 5 years. The inspector inspected the licensee's radioactive waste interim storage areas inside and outside Warehouse C and the recently constructed interim solid radioactive waste storage area. The inspector noted that all radioactive waste/materials storage areas were secured and posted properly and that they provided ample short-term storage space for more than the amount of radioactive waste that would be generated by the station in 5 years. The licensee had purchased and also fabricated concrete storage vaults on site to be used for interim storage of high integrity containers containing highly radioactive spent resins and spent filter cartridges if burial sites were not available. The licensee had performed technical and safety evaluations on the vault design and verified that the concrete vaults would withstand a tornado accident scenario.

The inspector took an inventory of selected radioactive waste containers stored in Warehouse C and in the interim solid radioactive waste storage areas. The radioactive waste containers inventoried were verified to be stored exactly in the locations described on the licensee's radioactive waste/materials container inventory list.

5 TRANSPORTATION OF RADIOACTIVE MATERIALS (86750)

The inspector reviewed the transportation program for shipment of radioactive materials and solid radioactive waste to determine compliance with the requirements in 10 CFR Parts 20, 61, and 71; and 49 CFR Parts 172-189.

5.1 Quality Assurance Program

The inspector verified that the licensee had received NRC Form 311, "Quality Assurance Program Approval," which documented NRC approval that the licensee's submitted quality assurance program complied with 10 CFR Part 71, Subpart H, for the transportation of radioactive materials. The approval expires February 28, 1999.

5.2 Procurement and Selection of Packages

The inspector reviewed the licensee's procurement of Department of Transportation and NRC certified containers. The licensee used strong-tight containers for the shipment of low specific activity dry radioactive waste. Of the 111 radioactive waste/materials shipments made during the time period January 1994 through September 1995, 10 shipments were for burial of dewatered resins or spent filter cartridges shipped in high integrity containers placed inside certified shipping casks for shipment to the burial sites. The remaining radioactive materials shipments were of waste stream and chemistry samples or analyses, and dry active waste or radioactive materials that were being shipped to a contractor for processing and volume reduction. The licensee maintained current documentation on the manufacturer's design testing, maintenance, and NRC certificates of compliance for all radwaste certified containers and casks used by the licensee.

5.3 Preparation of Packages for Shipment

The inspector verified that the licensee had procedures and checklists for the preparation of radioactive waste and materials shipments. A review of the licensee's procedures and shipping records and discussions with the radioactive materials control group personnel indicated that the certified cask's manufacturers handling, loading, and inspecting procedures were used in preparing shipping casks for shipment. The procedures provided for visual inspection of the package prior to filling the container, instructions for closing and sealing the container, marking and labeling requirements, and determining compliance with radiation and contamination limits. The licensee routinely used a checklist to assure that procedures were followed, and that packages were prepared properly for shipment in accordance with NRC, Department of Transportation, state, and burial site requirements. Discussions with radioactive materials control group personnel involved in the preparation of packages of radioactive waste and materials for shipment indicated that they possessed an excellent knowledge of the licensee's procedures and NRC and Department of Transportation regulations pertaining to the preparation of packages for shipment. The licensee maintained current transport permits for transportation of radioactive materials to or through the states of Mississippi, Tennessee, and South Carolina. The licensee also maintained current copies of radioactive material licenses for recipients of shipped radioactive waste and materials.

5.4 Delivery of Completed Packages to Carriers

The inspector verified that the licensee's procedures included the required NRC and Department of Transportation regulations. A review of selected records and shipping papers for radioactive waste shipments indicated that the licensee had prepared appropriate manifests and shipping papers in accordance with approved procedures ("Radman" computer software), and that the shipping papers included the necessary information to comply with regulatory requirements. The licensee used only exclusive use carriers for all radioactive waste shipments and assured that the following items were in

accordance with NRC and Department of Transportation regulations and station procedures: radiation levels were within required limits, transport vehicles were placarded properly, surface contamination on packages did not exceed requirement levels, and blocks and/or braces were in place to prevent damage or shifting of the load during transit.

5.5 Records, Reports, and Notifications

The inspector reviewed records of eight selected radioactive waste/materials shipments made by the licensee during 1994 and 1995. The shipments were adequately documented to meet NRC and Department of Transportation regulations. The licensee maintained records of all radioactive waste and/or materials shipments as required. The records included all shipping documentation, radiation surveys, and required notification information.

6 REPORTS OF RADIOACTIVE EFFLUENTS AND RADIOACTIVE WASTE SHIPMENTS (86750)

The inspector reviewed reports concerning the solid radioactive waste shipments and transportation activities to determine compliance with the requirements of 10 CFR Part 50.36(a)(2) and Technical Specification 6.9.1.4 and the Offsite Dose Calculation Manual.

The inspector reviewed the 1994 Annual Radioactive Effluent Release Report. The report was written in the format described in NRC Regulatory Guide 1.21, Revision 1, June 1974, included the information required by the offsite dose calculation manual and provided a summary of the radioactive solid waste shipped from the station for processing and/or burial. The inspector reviewed the last changes to the Process Control Program (Revision 3, July 1994). Revision 3 consisted of changing the reporting requirements for the radioactive effluent release report from semiannual to annual.

The inspector reviewed the licensee's records for shipments made between January 1 through December 31, 1994, of solid low-level radioactive waste. The inspector noted that the licensee had completed 21 radioactive waste shipments by exclusive use vehicle to a radwaste burial site in South Carolina and two waste processing sites in Tennessee. The licensee had not made any shipments of spent fuel. The following table summarizes the total volume and curie content of the solid low-level radioactive waste shipped for the period 1991 through 1994.

Year	Shipments	Volume Cubic Meters	Curie Content
1991	13	69.86	00.78
1992	30	126.72	233.89
1993	26	916.40	110.50
1994	21	500.00	1080.00

ATTACHMENT

1 PERSONS CONTACTED

1.1 Licensee Personnel

- *N. C. Paleologos, Vice President, Nuclear Operations
- *C. L. Terry, Group Vice President, Nuclear Production
- K. W. Barnes, Radiation Protection Training Coordinator
- *A. M. Barnette, Supervisor, Radiation Protection
- *M. R. Blevins, Plant Manager
- *R. S. Carr, Supervisor, Radiation Protection
- *J. R. Curtis, Manager, Radiation Protection
- *E. L. Dyas, Nuclear Specialist, Nuclear Overview
- *R. E. Fishencord, Supervisor, Radiation Protection ALARA
- R. Garces, Lead Health Physics Technician
- *D. A. Goodwin, Manager, Operations Support
- *N. S. Harris, Senior Regulatory Compliance Specialist
- *T. A. Hope, Manager, Regulatory Compliance
- *L. M. Hughes-Edwards, Supervisor, Radwaste Operations
- *D. C. Kay, Supervisor, Radiation Protection Radioactive Materials Control
- *R. C. Knapp, Senior Health Physicist
- *J. A. Luna, Senior Radiation Protection Technician
- G. D. Millican, Lead Health Physics Technician
- *T. R. Nesbit, Engineering Technician, Radwaste Operations
- *G. H. Ruzala, Chemist
- R. J. Sandford, Radiation Protection Training Instructor
- *D. L. Stearns, Senior Nuclear Specialist, Nuclear Overview
- *C. H. Welch, Nuclear Overview, Senior Nuclear Specialist

1.2 NRC Personnel

- H. A. Freeman, Resident Inspector
- *V. L. Ordaz, Resident Inspector

*Indicates those present at the exit meeting on October 6, 1995.

In addition to the personnel listed, the inspector met and held discussions with other personnel of the licensee's staff during the inspection.

2 EXIT MEETING

An exit meeting was conducted on October 6, 1995. During this meeting, the inspector reviewed the scope and findings of the report. The licensee did not express a position on the inspection findings documented in this report. The licensee did not identify as proprietary, any information provided to, or reviewed by the inspector.