

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Inspection Report: 50-313/94-13  
50-368/94-13

Licenses: DPR-51  
NPF-6

Licensee: Entergy Operations, Inc.  
Route 3, Box 137G  
Russellville, Arkansas

Facility Name: Arkansas Nuclear One, Units 1 and 2

Inspection At: Russellville, Arkansas

Inspection Conducted: March 14-18, 1994

Inspector: Anthony D. Gaines, Radiation Specialist

Approved:

*B. Murray*  
B. Murray, Chief, Facilities Inspection  
Programs Branch

*4/5/94*  
Date

Inspection Summary

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

Results (Units 1 and 2):

- Excellent surveillances were performed by qualified individuals (Section 1.1).
- There had been no major changes in facilities, equipment, programs, or procedures (Section 1.2).
- A good radioactive waste reduction program had been implemented (Section 1.2).
- The radioactive waste and transportation programs included a well qualified staff (Section 1.3).
- A good training program had been implemented for personnel involved in transportation activities (Section 1.3).

- Good implementing procedures were maintained for the radioactive waste management program (Section 1.4).
- An excellent program had been implemented regarding the minimization of onsite storage of radioactive waste (Section 1.4).
- Radioactive waste was properly classified, characterized, and prepared for shipment (Section 1.5).
- Individuals responsible for transportation of radioactive waste were knowledgeable of the regulatory requirements and burial site license conditions (Section 1.6).
- The response to a motor carrier's trailer inspection problem was excellent (Section 1.6.4)

Summary of Inspection Findings:

- Violation 313/9330-02; 368/9330-02 was closed (Section 2.1).

Attachment:

- Attachment - Persons Contacted and Exit Meeting

## DETAILS

### 1 SOLID RADIOACTIVE WASTE MANAGEMENT AND TRANSPORTATION OF RADIOACTIVE MATERIALS (86750)

The inspector reviewed the licensee's radioactive material transportation program to determine agreement with the commitments made in response to NRC Bulletin 79-19; compliance with the requirements of 10 CFR Parts 20, 30, and 71; and 49 CFR Parts 171 through 189. The inspector also reviewed the licensee's program for processing, control, and onsite storage of solid radioactive waste for agreement with the commitments in Chapter 11 of Units 1 and 2 Updated Safety Analysis Reports and compliance with the requirements in Unit 1 Technical Specification 4.29.4 and Unit 2 Technical Specification 3.11.4; and 10 CFR 61.55 and 61.56.

#### 1.1 Audits and Appraisals

The audit frequency for the solid radioactive waste and transportation programs was biennial. Therefore, there had not been an audit performed since the last NRC inspection of this area in July 1993 which reviewed the audit performed October 20 through December 16, 1992. Surveillance reports of quality assurance activities performed since the last NRC inspection of the solid radioactive waste and transportation programs in July 1993 were reviewed for scope, thoroughness of program evaluation, and timely followup of identified deficiencies. The inspector reviewed the quality assurance surveillances performed during the period July 1993 through February 1994 in the areas related to the performance of the solid radioactive waste and transportation programs. Comprehensive quality assurance surveillances were performed by qualified individuals to evaluate program activities and provided a means for periodic management oversight. Responses to findings of the surveillances were appropriate and timely.

The licensee used a vendor to conduct radiochemical analysis required in 10 CFR Part 61. The inspector noted that the vendor was on the licensee's Qualified Suppliers List. The licensee used an audit performed by the Nuclear Procurement Issues Committee in November 1992 to maintain the vendor on the qualified list. The inspector reviewed the audit of the vendor and noted that the audit was performed at the proper frequency and had been reviewed by the licensee for appropriateness to their program.

The inspector reviewed selected Condition Reports and Radiological Incident Reports that pertained to the solid radioactive waste and transportation programs. The inspector noted that they were handled appropriately and timely corrective actions had been taken.

#### 1.2 Changes

The inspector reviewed the organization, management controls, staffing, and the assignment of solid radioactive waste and transportation program responsibilities for changes. The inspector noted that there had been no major changes in facilities, equipment, programs, and procedures that would

have adversely affected the solid radioactive waste management and transportation of radioactive materials programs since the last inspection.

The inspector noted that minor organizational changes had been made to the program. The changes in the Radwaste Department included the loss of two laundry positions, and two Health Physics positions were transferred to the Health Physics Operations Department. The Radwaste Department gained a Health Physics Specialist; however, the individual does not work solely on radioactive waste projects.

The licensee had instituted a good radioactive waste reduction program. The program consisted of worker awareness, using reusables versus consumables, improved area decontamination, resin decontamination, and filter volume reduction. The worker radwaste awareness program was patterned after the ALARA awareness program and included training, incentives, and suggestions. The licensee had started to use reusable cloth mats instead of disposable plastic and reuseable nylon mesh tool bags instead of disposable plastic bags to decrease radioactive waste. The licensee emphasized improved area decontamination which has helped to reduce radioactive waste. The licensee was experimenting with decontamination of secondary resin to reduce the radioactive waste from this process. The licensee had purchased a spent filter cartridge cutter. The licensee was testing the cutter and intends to implement the cutter after the testing is completed. The cutter is designed to remotely shear radioactive spent filter cartridges in a shielded container. This will reduce the licensee's filter disposal volume.

The licensee plans to construct an onsite spent fuel storage area. The storage area will consist of uncovered concrete pads where dry casks of spent fuel will be stored onsite. The licensee has reviewed and observed dry cask storage at other utilities and has chosen a design that already has generic approval by the NRC. The licensee was still in the process of performing a 10 CFR 50.59 review of the dry cask storage. However, the licensee believes that review will be completed by the end of April 1994 and that the first cask may be ready for storage by October 1994.

### 1.3 Training and Qualifications

The inspector reviewed the training and qualification programs for personnel responsible for implementing the solid radioactive waste and transportation of radioactive materials programs. The licensee had implemented biennial frequency for radwaste training, and this training had been provided in December 1992 and was reviewed during a previous NRC inspection of this area.

The inspector discussed upcoming radioactive waste training and lesson plans with the radioactive waste instructor. The training and materials to be covered were good. The instructor stated that he attends radioactive waste workshops every year. The instructor also stated that, in addition to the biennial training provided the radioactive waste personnel, they sometimes have vendors teach special topics.

The inspector reviewed continuing training that was provided the radioactive waste personnel and noted that it was appropriate. The inspector noted that

the new Health Physics Specialist had attended a transportation training course and met the licensee's required qualifications. The Supervisor of Radwaste had attended appropriate professional development training within the last year.

The inspector reviewed a radwaste awareness film that had been used in training. The film was good and would help to heighten awareness of radwaste concerns. The inspector also reviewed the General Employee 2 handout and noted that radwaste awareness and reduction had been incorporated into that training.

#### 1.4 Solid Radioactive Waste Management

The inspector reviewed selected radioactive waste procedures that implemented the licensee's solid radioactive waste management program. The inspector noted that good quality procedures had been established for the processing and disposal of low-level radioactive waste and met the requirements of the licensee's Technical Specifications.

The inspector reviewed the licensee's records for low-level radioactive waste shipped since 1991. The following tabulation shows the total volume and curie content of the low-level radioactive waste shipped for the period 1991 through December 11, 1993.

YEAR	VOLUME CUBIC METERS	CURIE CONTENT
1991	418.0	603.2
1992	175.3	2,605.8
1993	78.6	19,405.7

In 1993, approximately 19,400 curies of the material shipped was from the licensee's shipments of spent resins, filter sludges, and evaporator bottoms. The licensee continues to do a very good job of identifying and shipping for burial the majority of radioactive waste onsite to preclude interim onsite storage while the uncertainties of future burials are being resolved.

As part of the licensee's long range radwaste management plan, the licensee has been keeping abreast of the burial site development in their compact and have reviewed their storage capabilities. The licensee's review of the burial site development indicated that the compact may have a burial site by 1999. The licensee stated that if the current burial site was closed to them in July 1994 that they have enough onsite storage space for more than the amount of radioactive waste that would be generated in 5 years.



### 1.5 Radioactive Waste Classification, Waste Characterization, and Shipping Requirements

The inspector reviewed the licensee's radioactive waste procedures and found the licensee's program for classification and characterization of radioactive waste to meet the requirements of 10 CFR Part 61. The licensee and a contractor laboratory performed radiochemical analyses on samples of various radioactive waste types for the requirements in 10 CFR 61.55 and 61.56. The test sample analyses results were used for determination of radwaste classification and isotopic composition of the radwaste sources. The licensee performs isotopic analysis for isotopic characterization on radioactive waste packaged for shipment and burial and employs correlation factors for characterization of isotopes not directly identified.

The inspector reviewed selected radioactive waste shipment manifests and shipping papers that accompanied the licensee's shipments of radioactive waste. The inspector determined that the completed manifests complied with the requirements of 10 CFR 20.2006.

### 1.6 Transportation Activities

The inspector reviewed the licensee's transportation program for shipment of radioactive materials and radioactive waste.

#### 1.6.1 Quality Assurance Program

The licensee has maintained an approved (Approval 0341) quality assurance program in accordance with 10 CFR Part 71, Subpart H, for the transportation of radioactive materials. The approval expires January 31, 1995.

#### 1.6.2 Procurement and Selection of Packages

The licensee used strong-tight containers for the shipment of radioactive waste. Of the 75 shipments made in 1993, 41 were laundry shipments in steel containers. Most of the other shipments were in sea/land containers which contained uncompacted waste that was shipped to a vendor who segregated and repackaged the radioactive waste. The licensee was on the user's list for all NRC and DOT certified packages used. The licensee maintained current documentation on the manufacturer's design testing, maintenance, and the NRC Certificate of Compliance for all radioactive material packages used by the licensee.

#### 1.6.3 Preparation of Packages for Shipment

The inspector verified that the licensee had procedures and checklists for the preparation of radwaste shipments. These 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 determination of radiation and contamination limits. The licensee routinely used a checklist to assure that the procedures were followed and that packages were properly prepared for shipment in accordance with NRC, DOT, state, and burial site requirements. Discussions with licensee personnel indicated that

the individuals involved in the transportation of radioactive waste and materials possessed a working knowledge of the procedures and NRC and DOT regulations pertaining to the preparation of packages for shipment.

#### 1.6.4 Delivery of Completed Packages to Carriers

The inspector verified that the licensee's procedures included the required NRC and DOT 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. The shipping papers included the necessary information to comply with regulatory requirements. The licensee only used exclusive use carriers for all radioactive waste shipments and assured that the following items were in accordance with NRC and DOT regulations and station procedures: radiation levels were within required limits, transport vehicles were properly placarded, 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.

The inspector observed licensee activities involving two radioactive materials shipments. One was a laundry shipment, and the other was the shipment of reed switch position transmitters. The inspector noted that these shipments were handled according to the licensee's procedures and NRC and DOT regulations. The inspector noted that the trailer for the laundry shipment had a sticker indicating that it had been inspected in October 1992. The inspector mentioned this to the supervisor of radwaste and the supervisor reviewed the appropriate DOT regulations and noted that the trailer should be inspected every 12 months. However, the motor carrier could either use a sticker to convey this information or keep a record of the inspection on file at their office. The supervisor called the motor carrier, and they could not find the inspection on file. The supervisor informed the carrier that the shipment could not proceed without the inspection. The carrier contacted an individual that was authorized to perform the inspection, and the inspection was performed before the shipment was allowed to depart. The supervisor then ensured that the trailer used on the shipment the next day had been properly inspected. The supervisor's response to the motor carrier's trailer inspection problem was excellent.

#### 1.6.5 Records, Reports, and Notifications

The inspector reviewed selected records of radioactive waste shipments made by the licensee during 1993 and 1994. The licensee's shipments were adequately documented to meet NRC and DOT regulations. The licensee maintained records of all radioactive waste and materials shipments as required. The records included all shipping documentation, radiation surveys, and required notification data.

## 1.7 Conclusions

Excellent surveillances were performed by qualified individuals. The surveillances identified pertinent findings and corrective actions for the findings were timely. There had been no major changes in facilities, equipment, programs, or procedures. Minor organizational changes were made. The licensee had instituted a good radioactive waste reduction program.

The radioactive waste department had an adequate, well-qualified staff to meet staffing requirements. The licensee had maintained a good training program for radwaste personnel.

The licensee had good implementing procedures for the radioactive waste management program. The licensee continued to perform an excellent job of identifying and shipping radioactive waste for burial in 1993 and the first quarter of 1994.

The licensee's low-level radioactive waste disposal program was conducted in accordance with the requirements of 10 CFR 20.2006, 61.55, and 61.56.

The licensee maintained good implementing procedures that addressed waste classification and characterization, selection of packages, preparation of packages, and delivery of the completed packages to the carrier. Individuals responsible for transportation of radioactive waste were knowledgeable of the regulatory requirements and burial site license conditions. The radwaste supervisor's response to a motor carrier's trailer inspection problem was excellent.

## 2 FOLLOWUP ON CORRECTIVE ACTIONS FOR VIOLATIONS (92702)

### 2.1 (Closed) Violation 313/9330-02; 368/9330-02: Failure to Perform a Radiation Survey to Assure Compliance with 10 CFR 20.301

The inspector reviewed the licensee's corrective actions for this violation. The corrective actions included revising procedures to provide specific guidance for sampling of liquids prior to disposal offsite, incorporating training on the event into the Health Physics Continuing Training Program, and identifying other possible containers of liquid that may have contained contaminated material. The inspector noted the following: the required procedures had been revised and provided good guidance for sampling of liquids prior to disposal, training on the event had been incorporated into the Health Physics Continuing Training Program, and the licensee had performed a review of other containers of liquid and had discovered some that were radioactively contaminated. The inspector reviewed the licensee's Condition Reports and Radiological Incident Reports and did not find any instances of this type of violation recurring. Therefore, this violation is considered closed.



## ATTACHMENT

### 1 PERSONS CONTACTED

#### 1.1 Licensee Personnel

- D. Akins, Health Physics Specialist
- \*S. Cotton, Manager, Radiation Protection/Radioactive Waste
- \*S. Bennett, Licensing Supervisor
- \*B. Bishop, Radwaste Supervisor
- \*R. Edington, Plant Manager, Unit 2
- J. Fancher, Health Physics Technician
- \*A. Gallegos, Licensing Supervisor
- \*L. Humphrey, Director Quality
- \*R. King, Supervisor, Licensing
- \*D. Mims, Licensing Director
- D. Moore, Health Physics Superintendent
- \*S. Pyle, Licensing Specialist
- \*J. Vandergrift, Plant Manager, Unit 1

#### 1.2 NRC Personnel

- \*L. Smith, Senior Resident Inspector
- \*K. Weaver, Reactor Engineer

\*Denotes personnel that attended the exit meeting. In addition to the personnel listed, the inspector contacted other personnel during this inspection period.

### 2 EXIT MEETING

An exit meeting was conducted on March 18, 1994. During this meeting, the inspector reviewed the scope and findings of the report. The licensee did not identify as proprietary, any information provided to, or reviewed by the inspector.