

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-416/95-19

License: NPF-29

Licensee: Entergy Operations, Inc.
P.O. Box 756
Port Gibson, Mississippi

Facility Name: Grand Gulf Nuclear Station

Inspection At: Port Gibson, Mississippi

Inspection Conducted: December 11-15, 1995

Inspector: Thomas H. Andrews Jr., Radiation Specialist, Plant Support Branch
Division of Reactor Safety

Accompanied by: Michael C. Hay, Radiation Specialist, Plant Support Branch
Division of Reactor Safety

Approved:

Blaine Murray
Blaine Murray, Chief, Plant Support Branch
Division of Reactor Safety

1/8/96
Date

Inspection Summary

Areas Inspected: Routine, announced inspection of audits, appraisals and effectiveness of licensee controls; changes to organization, facilities, and procedures; training and qualification of personnel; implementation of the solid radioactive waste program; shipping of low-level radioactive waste for disposal and transportation of other radioactive material; and control of radioactive materials and contamination, surveys, and monitoring in the solid radioactive waste, transportation of radioactive materials, and radiation protection programs.

Results:

Plant Support

- Audits and appraisals of the solid radioactive waste and transportation of radioactive material programs were thorough, probing, and well documented. Individuals performing these audits and appraisals were knowledgeable of program requirements and applicable regulations (Section 2.1).

- Individuals performing duties related to the handling and processing of radioactive wastes were very knowledgeable of program procedures regarding processing, packaging, storage, and shipment of radioactive materials (Section 2.3).
- Advanced and improved methods of minimizing radioactive wastes were being implemented. A backlog of drummed waste was stored in areas throughout the radiological controlled area (Section 2.4).
- Shipments of radioactive wastes and radioactive materials were performed in accordance with regulations. The designated emergency response individual for transportation incidents demonstrated excellent knowledge regarding hazards and actions to be taken to help mitigate consequences of an accident involving radioactive materials (Section 2.5).
- Housekeeping was excellent throughout the radiological control area; there were few contamination and high radiation areas. An issue related to posting of a high radiation area was identified. Examples of poor industrial safety practices were identified (Section 3.1).

Summary of Inspection Findings:

- None

Attachment:

- Attachment - Persons Contacted and Exit Meeting

DETAILS

1 PLANT STATUS

The plant operated at full power during the inspection period. There were no abnormal operating occurrences that impacted the inspection.

2 SOLID RADIOACTIVE WASTE MANAGEMENT AND TRANSPORTATION OF RADIOACTIVE MATERIALS (86750)

2.1 Audits and Appraisals: Effectiveness of Licensee Controls

The inspector reviewed the following quality assurance audits involving the solid radioactive waste and transportation of radioactive materials:

- Quality Program Audit QSA-93/0007, March 3, 1993, "Process Control Program."
- Quality Program Audit QSA-93/0022, September, 24, 1993, "Low-Level Radioactive Waste and NRC Approved Packaging and Shipping Program and Radioactive Laundry."
- Quality Program Audit Report QSA-93/0034, May 6, 1994, "Process Control Program for Solidification of Radioactive Resin."
- Quality Program Audit Report QSA-94/0026, November 18, 1994, "Health Physics Low Level Radioactive Waste and NRC Approved Packaging Program."
- Quality Program Audit Report QPA 32.01-95, July 28, 1995, "Health Physics Radioactive Laundry Program."
- Quality Program Audit Report QPA 32.02-95 (Draft), "Health Physics Low Level Waste and NRC Approved Packaging Program."

The inspector determined that the above audits were thorough, probing, and well documented. The audits were performed by personnel with a strong knowledge of the radwaste program and transportation requirements.

The inspector reviewed the licensee's actions taken regarding observations, deviations and deficiencies identified in the quality assurance audits. When corrective actions were identified in the audit reports, the responsible licensee organization conducted investigations and root cause analyses in a timely fashion. The inspector determined that the licensee addressed items identified in the audits in an aggressive manner.

The licensee trained the radwaste technicians to perform some quality control commitments in response to IE Bulletin 79-20. By allowing the technicians to perform these functions, the licensee reduced radiation exposures for the task. The inspector reviewed checklists contained in the documentation for shipments. The checklists provided appropriate guidance to assure compliance with IE Bulletin 79-20 commitments and 10 CFR Parts 61 and 71.

2.2 Changes to Organization, Facilities, and Procedures

There were no significant changes to the organization, facilities, and procedures since the previous inspection. The licensee was integrating two new components into the radwaste processing system to more economically process and reduce radwaste volumes. These are discussed in Section 2.4.

2.3 Training and Qualifications of Personnel

The inspector reviewed the applicable experience, qualifications and training of selected employees that were responsible for processing, testing, storage, and shipping low-level radioactive waste and transportation of radioactive materials. During this process, the inspector noted that a radwaste technician, who was recently transferred to the radwaste organization, did not have current training in radioactive waste handling. The licensee had identified this in a quality assurance audit and was in the process of addressing this issue. According to the licensee, a person who was transferred into the organization does not have to satisfy all of the training requirements for the position prior to the transfer. Training for this individual was scheduled for January 1996.

The licensee was aware of changes made to Department of Transportation regulations that are to become effective in early 1996. The licensee had conducted training to address these changes. Training was conducted in accordance with Department of Transportation regulations covered in 49 CFR Part 172, Subpart H and with Items 5 and 6 of IE Bulletin 79-20. The training included discussion of handling of radioactive materials/wastes as well as waste form requirements of 10 CFR Part 61.

The inspector discussed ongoing activities with individuals who were involved in the processing, storage, and shipment of solid low-level radioactive wastes for disposal and involved in the transportation of licensed radioactive materials. The inspector also toured the facility and observed personnel performing duties related to handling and processing of radioactive wastes. These individuals were very knowledgeable regarding processing, packaging, storage, and shipment of radioactive materials.

The inspector determined that the licensee had properly implemented the training program committed to in response to IE Bulletin 79-20, "Packaging, Transport, and Burial of Low-Level Radioactive Waste."

2.4 Implementation of the Solid Radioactive Waste Program

The inspector reviewed documents maintained by the licensee regarding Department of Transportation, NRC, and state authority regulations and copies of the waste processing vendor and burial site licenses. The information reviewed was current and accessible for individuals working with radioactive wastes in accordance with commitments to Items 1 and 2 of IE Bulletin 79-20.

The licensee used containers supplied by vendors that were certified by the cognizant disposal state authority to ensure structural stability of the waste. The licensee had a program to track and control the use of these containers to ensure that the limitations contained within the certification of compliances were maintained.

The inspector determined that the licensee had approved, detailed instructions and operating procedures for the transfer, packaging, and transport of low-level radioactive waste. The inspector reviewed procedures used by the licensee to classify waste shipments, to classify waste forms, and to evaluate and upgrade scaling factors as necessary. The procedures were compared with regulatory requirements in 10 CFR Parts 20 and 61 as well as commitments associated with IE Bulletin 79-20, and no discrepancies were noted.

The licensee was undertaking various initiatives to reduce the amount of radioactive wastes produced. Two notable methods were the advanced resin cleaning system and the reverse osmosis system. At the time of the inspection both of these methods were undergoing testing to demonstrate their capabilities.

The advanced resin cleaning system was a permanent system installed in the facility to remove fines and corrosion products from the condensate demineralizer resins and allow their continued use in the plant. The licensee indicated that the cleaning process was much more efficient than backwashing or ultrasonic cleaning and improves the efficiency of the resin beds during operation. The licensee projected a significant reduction in the amount of radwaste produced.

Reverse osmosis is a membrane process that acts as a filter to remove all dissolved minerals and a large portion of dissolved organic materials from water. The reverse osmosis system was a vendor-owned/operated, temporary system connected to the licensee's radwaste processing system. The licensee contracted with the vendor for the use of the system hardware to evaluate the effectiveness of the system. After this evaluation period, the licensee indicated that they would review the potential for making this a permanent system.

The inspector discussed these processes with the licensee with regard to the 10 CFR 50.59 evaluations. The radwaste coordinator stated that the engineering department had performed a preliminary screening safety

evaluation. This screening would be followed with a detailed 10 CFR 50.59 evaluation once the system had been thoroughly evaluated. No significant safety concerns were identified during the preliminary screening evaluation.

During tours of the radiological controlled area, the inspector observed a backlog of drummed materials awaiting processing through the advanced resin cleaning system or the reverse osmosis system. These drums were stored in various hallways, rooms and cubicles throughout the facility. Prior to the inspection, the licensee had identified a problem where some of the drums did not have labels properly identifying the contents. Corrective actions had been taken to resolve this problem. During the inspection, the inspector observed that drums were properly labelled which identified the contents of the drum.

Because of the number of areas used for drum storage and the large number of drums being stored, the inspector questioned the licensee's ability to account for the drums to ensure that none were "lost." The licensee provided an inventory indicating that there were 108 drums, with 54 drums identified for each system. The inspector verified that the drums could be located through the inventory system. The inspector determined that the licensee was maintaining control of the drummed materials in an acceptable manner.

The licensee estimated that this backlog of material could be processed over a 6 to 12-month period, depending on the reliability of the new systems. According to the licensee, should it not be possible to process this backlog of waste as planned, the drummed waste could be disposed of using the normal disposal process by shipping them to an offsite vendor for processing and disposal.

2.5 Shipping of Low-Level Radioactive Waste for Disposal, and Transportation of Other Radioactive Material

On December 11, 1995, the inspector observed certain aspects of a shipment of radioactive waste (dewatered resins) to Scientific Ecology Group in Tennessee. The shipment arrived on December 12, 1995. The inspector reviewed applicable records and conducted discussions with licensee staff. Radiation and contamination surveys of packages and vehicles were performed in accordance with 49 CFR Parts 173.441 and 173.443 and were documented. Shipping documentation was in accordance with 10 CFR Part 71, 10 CFR Part 20.2006, and 49 CFR Part 172.

While this shipment was in transit, the inspector contacted the emergency number listed in the shipping papers at 9 p.m. on December 11, 1995. The telephone number given was for the licensee's control room and was answered quickly.

The individual who answered the phone obtained a copy of the shipping documents. With these documents available, this individual was able to answer questions similar to those that might be asked by an emergency response organization during a transportation incident. The inspector was satisfied

that the licensee could provide the emergency response information, required by the Department of Transportation requirements specified in 49 CFR Parts 172.600 through 172.604 and in a timely manner as discussed in Information Notice 92-62.

The inspector reviewed shipping documentation for a selected shipments and determined that the shipments were properly classified and proper controls were established.

3 OCCUPATIONAL RADIATION EXPOSURE (83750)

3.1 Control of Radioactive Materials and Contamination, Surveys, and Monitoring

The inspector toured the facility radiological controlled area on several occasions during the inspection period to observe housekeeping, postings, contamination controls, radwaste processing, and worker practices. The radiological controlled area was very clean. There were very few contaminated areas and few high radiation areas, attesting to a low source term facility.

During one of the tours of the radiological controlled area, the inspector observed an area posted as a transient high radiation area inside containment. The area was bounded on one side by the containment wall, on two sides by roped boundaries and on the fourth side by stairs leading to a higher elevation. Access to the stairs was not restricted by the bounded area. The rope was tied off to the lower end of the handrail for the stairs. At the top of the stairs on the handrail overlooking the transient high radiation area, there was a sign indicating that the handrail was a boundary. However, on the sloped portion of the handrail between elevations, there was no tape, boundary rope, or signs indicating that the handrail was serving as the boundary for the transient high radiation area.

The inspector reviewed licensee procedures, radiation work permits, and training materials regarding postings and entry requirements into high radiation areas. Workers were instructed to consider transient high radiation areas as being high radiation areas. On most radiation work permits, workers were allowed to enter a high radiation area provided they had permission from radiation protection. The licensee's training materials stated that all boundaries were to be treated as "walls." This meant that no one was to enter or reach across a boundary without health physics approval. There was no guidance provided to the worker to allow them to reach into a posted area without first notifying radiation protection and receiving permission.

The inspector contended that someone on the stairs between elevations would not have any signs or postings to attract their attention to indicate that the handrail was a boundary to a transient high radiation area. There was nothing to prevent the worker (other than good judgement) from reaching across the

handrail into the transient high radiation area or entering the area across the handrail. This would result in a violation of the radiation work permit since the worker would not have been specifically authorized to enter the area by radiation protection.

After discussing this observation with the licensee, the handrail was posted as a radiological boundary. The licensee reviewed other posted areas throughout the plant to ensure that this condition did not exist elsewhere. The licensee also indicated that a meeting with personnel from within the Entergy Operations, Inc., system was planned to discuss posting practices and to develop a consistent practice among the Entergy Operations, Inc., system nuclear plants. They stated that this topic would be discussed to ensure that it was not a problem elsewhere in the system.

The inspector reviewed area surveys and conducted an independent survey of the area boundary for the transient high radiation area and determined that the safety significance associated with this observation was small. According to the licensee, potential for someone entering the area over the handrail was remote and the consequences of reaching into the area for short periods of time would be minor. Because the safety significance associated with this observation was small, and because of the actions taken by the licensee to ensure that the handrail was marked as a boundary to the area, there were no violations of regulatory requirements identified associated with this observation.

During the course of the inspection, the inspectors identified several examples of poor industrial safety practices. These examples included unsecured compressed gas bottles, chemicals in an unmarked/uncontrolled locker with oily rags, and damaged/deformed electrical connection equipment in use in an outdoor environment. These examples were identified both inside and outside the radiological controlled area. The licensee was informed in each of the above cases. Immediate actions were taken by the licensee to correct these conditions.

ATTACHMENT

1 PERSONS CONTACTED

1.1 Licensee Personnel

- M. Carver, Health Physics Specialist, Radwaste
- * L. Daughtery, Technical Coordinator, Nuclear Safety & Regulatory Affairs
- * M. Dietrich, Manager, Nuclear Training
- J. Dimmette, Manager, Operations
- N. Edney, Radiation Control Supervisor
- W. Garner, Supervisor, Audits
- * C. Holifield, Licensing Engineer
- * R. Hutchinson, Vice President, Nuclear Operations
- M. Jones, Technical Specialist, Nuclear Safety & Regulatory Affairs
- * L. Maulden, Maintenance Technical Coordinator
- * M. Meisner, Director, Nuclear Safety & Regulatory Affairs
- M. Michalski, Radwaste Coordinator
- * D. Pace, General Manager
- M. Owynn, Radiation Control Supervisor
- * J. Reaves, Technical Coordinator, Quality
- * F. Rosser, Radiation Control Supervisor
- * T. Tankersley, Radiation Control Superintendent
- * D. Williams, Technical Specialist, Nuclear Safety & Regulatory Affairs
- M. Withrow, Manager, Safety Analysis

1.2 NRC Personnel

- J. Tedrow, Resident Inspector
- C. Hughey, Senior Resident Inspector

In addition to the personnel listed above, the inspector contacted other personnel during this inspection period.

* Denotes personnel that attended the exit meeting.

2 EXIT MEETING

An exit meeting was conducted on December 15, 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.