

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-186/92001(DRSS)

Docket No. 50-186

Licensee: University of Missouri
Columbia, Missouri

Facility Name: Missouri University Research Reactor Facility

Inspection At: Columbia, Missouri
NRC Region III Headquarters
Glen Ellyn, IL

Inspection Conducted: March 24 and 31, 1992

Inspectors:

G. Pirtle
G. Pirtle
Plant Protection Analyst

4/7/92
Date

M. Mitchell
M. Mitchell
Radiation Specialist

4/7/92
Date

Approved By:

J. R. Creed
for J. R. Creed, Chief
Safeguards Section

4/7/92
Date

Inspection Summary

Inspection on March 24 and 31, 1992 (Report No. 50-186/92001(DRSS))

Areas Inspected: Routine, announced inspection of an irradiated reactor fuel shipment at the point of origin. The inspection included an examination of the general requirements for preparation of the shipment of irradiated reactor fuel, and requirements for road shipments of irradiated reactor fuel.

Results: The licensee was found to be in compliance with NRC requirements within the areas inspected.

DETAILS

1. Key Persons Contacted

In addition to the key members of the licensee's staff listed below, the inspectors interviewed other licensee employees. The asterisk (*) denotes those present at the telephone exit interview conducted on March 31, 1992.

*J. Rhyne, Reactor Director, University of Missouri-Columbia Research Reactor (MURR)

*W. Meyer, Reactor Manager (MURR)

*J. Ernest, Assistant Reactor Manager (MURR)

*R. Hultech, Reactor Physicist (MURR)

*S. Langhorst, Health Physics Manager (MURR)

A. Holland, Tri-State Motor Transit Driver/Escort

R. Holland, Tri-State Motor Transit Driver/Escort

2. Entrance and Exit Meetings

On March 24, 1992, Mr. W. Meyer, Reactor Manager, and other members of the MURR staff were informed of the purpose of the inspection and the functional areas to be examined.

A telephone exit meeting with the licensee representatives denoted in Section 1 was conducted on March 31, 1992. A general description of the scope of the inspection was provided. Briefly listed below are the findings discussed during the exit meeting. The details of each finding discussed are referenced, as noted, in this report.

- a. The personnel present were advised that no violations, deviations, or unresolved items were noted during the inspection.
- b. Certification of the crane used for transferring the loaded cask from the loading dock to the transport trailer was discussed. The licensee stated that they would review whether they needed to impose additional controls to ensure that the crane's lifting capacity was adequate. The licensee subsequently informed the inspectors that they would modify their cask handling procedures to include additional verification and control requirements. (Section 4.a(4)).

3. Background

Nuclear Regulatory Commission Region III was notified by letter dated February 27, 1992, of a shipment of irradiated reactor fuel from the University of Missouri (Columbia) Research Reactor (MURR) to the Department of Energy Westinghouse Savannah River Site, Aiken, South Carolina. The shipment route was approved by the Nuclear Regulatory Commission's Office of Nuclear Material Safety and Safeguards on February 21, 1992. The inspection was performed by a Safeguards inspector (SI) and a Radiation Specialist (RS). The shipment was completed with no incidents reported to the Nuclear Regulatory Commission.

4. Transportation of Irradiated Reactor Fuel-General Requirements (IP81310)

- a. The inspectors determined, as described below, that the licensee followed established procedures and Nuclear Regulatory Commission regulatory requirements for shipment of irradiated fuel.
- (1) The inspectors verified by observation and interviews that:
 - (a) Shipping papers were complete and accurate;
 - (b) The transportation vehicle and cask were properly placarded and labeled;
 - (c) The licensee's radiation/contamination surveys for the cask and vehicle were reviewed and radiation and contamination levels were within regulatory limits. Additionally, direct measurements by the Radiation Specialist confirmed that radiation readings were within regulatory limits;
 - (d) The licensee had completed the applicable cask loading checkoffs;
 - (e) The escorts had been briefed concerning radiation protection actions needed in event of an accident;
 - (f) The licensee had made arrangements for Local Law Enforcement Agency (LLEA) response;
 - (g) The shipment was planned to minimize intermediate stops;
 - (h) At least one escort would maintain visual surveillance of the shipment when the vehicle is stopped;
 - (i) The individuals serving as escorts were trained;
 - (j) The vehicle driver understood and was capable of implementing security procedures;
 - (k) Status calls were planned to be made at least every two hours; and
 - (l) The escort had the capability of communicating with the communication center and the LLEA.
 - (2) The Radiation Specialist independently took smears at various locations on the cask. The smears were counted by the Nuclear Regulatory Commission Region III laboratory. Contamination levels were within regulatory limits.
 - (3) The Safeguards inspector's review of the shipping documents included: the Straight Bill of Lading-Short Form (Freight Bill No. 512647, Shipper No. 92-1); Emergency Procedures for Drivers/Escorts (Guide 63); Spent Fuel Shipment Escorts Guidance for Law Enforcement Escorts in the Appropriate States; Instructions Regarding Controls for Radioactive Shipments Consigned as Exclusive Use (Sole Use or full load); Special Handling Instructions; Carrier/Driver Instructions; and Maintenance of Exclusive Use Instructions. No significant deficiencies were noted. The inspector observed the trip briefing provided to the carrier drivers by the licensee, and followed the shipment and verified that an armed escort was provided in the St. Louis, Missouri area and at the Illinois state border. The inspector also observed the vehicle inspection and radiation survey performed by the Illinois State Police and the Illinois Department of Nuclear Safety at the Ofallon, Illinois weight station.

Additionally, the safeguards inspector confirmed by interviews with the Reactor Physicist that the appropriate state governor or designee of each state through which the irradiated fuel is being transported was advised of the shipment schedule as required by 10 CFR 73.37(f)(1).

- (4) The Radiation Specialist reviewed the external radiation survey results dated March 23 and 24, 1992, and the pre-shipment external contamination survey dated March 24, 1992. No significant deficiencies were noted. The Radiation Specialist also reviewed the licensee's "Operating Procedures For BMI-1 Shipping Cask". The inspector queried the MURR staff regarding the certified lifting capability of the crane(s) used for transfer of the loaded cask from the loading dock to the trailer. This crane is procured on an as needed basis from a local heavy equipment supply company and therefore is not under the licensee's long term control. The licensee indicated that the crane's rated lifting capacity had been checked to ensure that under working conditions it equalled or exceeded the facility crane lifting capacity; however, this was not proceduralized. The licensee decided to make a change in the Quality Assurance Procedure. This change will confirm an acceptable minimum weight lifting capability and will impose a safety margin by administratively limiting boom travel when lifting the loaded cask to the trailer.