



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA ST., N.W., SUITE 3100  
ATLANTA, GEORGIA 30303

Special Report: WASTE PACKAGING INSPECTIONS OF LICENSEE-SHIPPERS REPORT NO. 80-07

Licensee- Shipper: Maine Yankee, Docket No. 50-309  
Yankee Atomic Power Company  
Wiscasset, ME

Disposal Site: Chem-Nuclear Systems, Inc.  
P. O. Box 726, Barnwell, South Carolina 29812  
Docket No. 15000039

Inspector: T. C. MacArthur 8/7/80  
T. C. MacArthur, Radiation Specialist, FF&MS Section, FF&MS Branch Date Signed

Approved by: J. P. Potter 8/15/80  
J. P. Potter, Chief, FF&MS Section, FF&MS Branch Date Signed

SUMMARY

Inspection Dates: May 16, 1980 visit to Chem-Nuclear Waste Disposal Site, Barnwell, South Carolina for unannounced inspections of licensee-shippers.

Areas Reviewed: Each licensee-shipper vehicle was inspected for compliance with Department of Transportation (DOT) and Nuclear Regulatory Commission (NRC) regulations as follows: (1) shipping paper requirements; (2) DOT Placarding requirements; (3) radiation levels; (4) removable contamination; (5) DOT marking and labeling requirements for packages; (6) DOT and NRC requirements for external package features, and (7) prohibited articles or contents.

Results: Of the seven areas inspected involving this shipment, one item of noncompliance was identified.

## DETAILS

### 1. Persons Contacted

R. Sappington, South Carolina, DHEC  
W. House, South Carolina, DHEC  
V. Autry, South Carolina, DHEC

### 2. General

The NRC inspection consisted of a review of the shipping papers, radiation survey of the vehicle, contamination surveys and radiation level surveys of selected packages. General surveys and observations were conducted to determine if the vehicle had proper placards, proper seals, and if any obvious safety hazards existed. The contents of the vehicles were inspected for appropriate marking, labeling, tightness of seals, integrity of package construction or any evidence of leakage.

Chem-Nuclear assigns a control number for each shipment upon arrival at the site. These numbers were called "shipment survey report numbers" (SSR No.) and were used by the inspectors to identify licensee-shippers during this inspection.

### 3. Shipments Inspected

On May 16, 1980, one shipment of 322 cubic feet of solid UF\* was received at the Barnwell, South Carolina burial site from the Maine Yankee Atomic Power Station improperly labelled. The shipment, carried by Chem-Nuclear trailer #027 (SSR #020251), contained 6.0 curies identified as Co-58, Co-60, and Cs-137. There was no "Radioactive-LSA" stencil or sticker on the shipping cask (21-300-2) as required by 49 CFR 173.392(c)(8).

### 4. Shipping Papers

The shipping papers were reviewed for completeness and to ascertain if the contents of the shipment were properly identified, and if emergency notification procedures and instructions were included as required under 49 CFR 172, Subpart C. Specific requirements for shipping papers were reviewed as follows:

Material shipping name	-	49 CFR 172.100/172.200/172.202
Material class	-	49 CFR 172.200/172.202
Name sequence	-	49 CFR 172.200/172.202
Total quantity (volume)	-	49 CFR 172.200/172.202
Limited quantity	-	49 CFR 172.200/172.203
Name of each radionuclide	-	49 CFR 172.203
Physical and chemical form	-	49 CFR 172.203
Activity in curies	-	49 CFR 172.203

\*Urea formaldehyde

Category or label	-	49 CFR 172.203
Notation of NRC/ERDA package approval	-	49 CFR 172.203
Proper certification	-	49 CFR 172.204

In addition to the above, 49 CFR 177.817 requires carriers to maintain the above shipping papers readily available for inspection and recognizable by authorities in case of an accident.

No items of noncompliance were identified.

5. Each vehicle was inspected for conformance with DOT placarding requirements (49 CFR 172, Subpart F and 49 CFR 173.392). The vehicles were also inspected for compliance with the following:

- Maximum transportation index of 50 - (49 CFR 177.842)
- Loaded so as to avoid spillage (49 CFR 177.842)
- Properly blocked and braced (49 CFR 173.392/177.842)
- LSA vehicle survey (49 CFR 177.843)

No items of noncompliance were identified.

6. Maximum Radiation Levels

Each truck was surveyed for maximum radiation levels in the normally occupied portions of the vehicle, in a vertical plane at the edge of the flatbed or at the surface of the closed vehicles, in a vertical plane six feet from the sides of the vehicle where possible, and on the surface of a representative package. Each shipping cask was surveyed at the surface.

No levels were in noncompliance with 49 CFR 173.393 limits.

7. Packaging

A representative sampling of packages from each shipment was examined for conformance with DOT marking and labeling requirements. External features of the packages were examined for conformance with DOT and NRC requirements as noted below:

Low specific activity (LSA) packaging	-	49 CFR 173.392
Tight packages - Ltd. Qty., No release of material	-	49 CFR 173.391 or 173.392
Radioactive material markings	-	49 CFR 173.392/173.393
Security seals	-	49 CFR 172.310
Gross weight requirements	-	49 CFR 173.393
Proper shipping name	-	49 CFR 172.310
LSA labeling	-	49 CFR 172.100/172.300
Cask design specifications	-	49 CFR 173.392
	-	49 CFR 173.393a