



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

Special Report: Waste Packaging Inspection of Licensee-Shippers
 Report No. 79-02A

Reference: Memo Leo B. Higginbotham, A/D, Division of FFMSI to
 J. T. Sutherland, Chief, FFMS Branch, Region II

Licensee-Shipper: See Attachment A

Disposal Site: Chem-Nuclear Systems, Inc.
 P. O. Box 726
 Barnwell, South Carolina 29812

Inspector: *R. A. Brown* 11/5/79
 R. A. Brown Date Signed

Approved by: *J. P. Potter* 11/6/79
 J. P. Potter, Section Chief, FF&MS Section Date Signed

SUMMARY

Inspection Dates: September 25-26, 1979 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; and (6) DOT and NRC requirements for package external features.

Results:

Of the six areas inspected involving 14 shipments, no items of noncompliance were identified.

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DETAILS

1. Persons Contacted

W. House, South Carolina Department of Health
M. Tkacik, South Carolina Department of Health
D. Ebenhack, Chem-Nuclear Inc.
J. Shuler, Chem-Nuclear Inc.

2. General

All vehicles were parked in a double lane road when they arrived at the site. Site technicians evaluated shipping papers to determine if the materials met all site and license requirements. A radiation survey was then performed around the vehicle and the contents were examined (visual survey). Contamination smears were obtained from selected packages and/or from the vehicle surface.

The shipping papers and the Chem-Nuclear arrival survey report were presented to the South Carolina on-site inspector and the NRC inspector for evaluation. Approval by the state inspector was required before the vehicle was permitted inside the site controlled area.

The NRC survey 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.

The vehicles were then allowed into the site controlled area for unloading.

Another health physics survey was performed by Chem-Nuclear technicians prior to the vehicles exit from the controlled area.

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 the licensee-shipper during this inspection.

3. Shipments Inspected

Fourteen shipments were inspected during the period of September 25-26, 1979. A listing of the shippers inspected and their assigned SSR number is included as Attachment A.

1633 344

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 radio nuclide	-	49 CFR 172.203
Physical and chemical form	-	49 CFR 172.203
Activity in curies	-	49 CFR 172.203
Category or label	-	49 CFR 172.203
Notation of NRC/ERDA		
package approval	-	49 CFR 172.203
Proper certification	-	49 CFR 172.203

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.

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 plane at the edge of the flat bed 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. Shipping casks were surveyed at the surface.

Radiation levels were measured with a calibrated Eberline E-500B instrument equipped with a side window GM detector.

No levels were in noncompliance with 49 CFR 173.393 limits.

1633 345

7. Contamination Smears

Each vehicle and a representative sample package was surveyed for removable contamination by smearing over a 100 square centimeters area of the surface.

No more than two smears were taken from any package or vehicle. Smears were taken from areas that would most likely be contaminated. The smears were checked for gross beta-gamma contamination at the site, using the portable GM detector, then returned to Region II lab for further analysis.

8. 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 package - ltd. Qty.,	- 49 CFR 173.391 or 173.392
No release of material	- 49 CFR 173.392/173.393
Radioactive material markings	- 49 CFR 172.310
Security seals	- 49 CFR 173.393
Gross weight requirements	- 49 CFR 172.310
Proper shipping name	- 49 CFR 172.100/172.300
LSA labeling	- 49 CFR 173.392
Cask design specifications	- 49 CFR 173.38

No items of noncompliance were noted concerning packaging requirements.

9. Verification of Package Contents

Due to the current lack of facilities for properly opening packages at the site, the criteria for opening packages was restricted to those packages containing solidified waste (to verify the absence of free-standing water) and/or where there was evidence of leakage.

1633 346

ATTACHMENT A

SSR No.	Shipper
016776	Carolina Power and Light Robinson Plant 411 Fayetteville Street Raleigh, North Carolina 27602 Docket No. 50-261
016777	Jersey Central Power and Light Co. Oyster Creek Plant Madison Avenue at Punch Bowl Road Morristown, New Jersey 07960 Docket No. 50-219
016785	Consolidated Edison Company of New York Inc. 4 Irving Place New York, New York Docket Nos. 50-247, 50-286
016786	Connecticut Yankee Atomic Power Co P. O. Box 270 Hartford, Connecticut 06101 Docket No. 50-213
016787	Virginia Electric and Power Company Surry Plant Post Office Box 26666 Richmond, Virginia 23261 Docket Nos. 50-280 and 50-281
016791	Philadelphia Electric Company Peach Bottom Plant 2301 Market Street Philadelphia, Pennsylvania 19101 Docket Nos. 50-277 and 50-278
016792	Tennessee Nuclear Specialities P. O. Box 158 Jonesboro, Tennessee 37652 License No. Tenn-S-9009

1633 347

SSR No.	Shipper
016793	Duke Power Company Oconee Plant 422 S. Church Street Charlotte, North Carolina 28242 Docket Nos. 50-269, 50-270 and 50-287
016790 and 016775	Commonwealth Edison Co. Dresden Plant P. O. Box 767 Chicago, Illinois 60690 Docket Nos. 50-010, 50-237 and 50-249
016772	Westinghouse Corp. Advanced Reactor Division Madison, Pa.
016773	Maine Yankee Atomic Power Co. 20 Turnpike Rd. Westboro, Massachusetts 01581 Docket No. 50-309

1633 348