



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. 79-07A

Reference: TI 2840/(Rev. 1), Waste Packaging Inspection, 10/19/79

Licensee-  
 Shipper: Chem-Nuclear System, Inc.  
 P. O. Box 726, Barnwell, South Carolina 29812  
 Docket No. 15000039

Inspectors: *R. L. Woodruff* *January 17, 1980*  
 R. L. Woodruff, Radiation Specialist  
 FF&MS Section, FF&MS Branch Date Signed

*W. W. Peery* *January 18, 1980*  
 W. W. Peery, Radiation Specialist  
 FF&MS Section, FF&MS Branch Date Signed

Approved by: *J. E. Potter* *1/18/80*  
 J. E. Potter, Section Chief, FF&MS Branch Date Signed

SUMMARY

Inspection Dates: December 12-13, 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 36 shipments, no items of noncompliance were identified.

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## DETAILS

### 1. Persons Contacted

Emory Williams, South Carolina Department of Health  
Richard J. Bluemle, South Carolina Department of Health  
David Ebenhack, Health Physicist, Chem-Nuclear, Inc.  
John Ott, Compliance Coordinator, Chem-Nuclear, Inc.

### 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 the licensee-shipper during this inspection.

### 3. Shipments Inspected

Thirty-six shipments were inspected during the period of December 12-13, 1979. A listing of the shippers inspected and their assigned SSR number is included as Attachment A.

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

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 392/177.843)
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.

No levels were in noncompliance with 49 CFR 173.393 limits.

7. Contamination Smears

Each vehicle and a representative sample package was surveyed for removable contamination by smearing over a 300 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.

No smears were found to be contaminated in excess of 49 CFR 173.397 limits.

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 packages - Ltd. Qty., or 173.392	-	49 CFR 173.391
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 173.393(a)

No items of noncompliance were identified.

9. Verification of Package Contents

Due to the 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.

No packages were selected for opening.

No items of noncompliance were noted.

10. Interviews

Interviews were not held during this inspection.

ATTACHMENT A

<u>SSR NO.</u>	<u>NRC REGION</u>	<u>SHIPPER</u>
017967	II	Babcock and Wilcox P. O. Box 785 Lynchburg, Virginia 24505
017971 and 017990	III	Commonwealth Edison Quad Cities Station P. O. Box 767 Chicago, Illinois Docket Nos. 50-254 and 50-265
017973	III	Honeywell, Inc. Dr. John H. Fossum 600 - 2nd Street, N.E. Hopkins, Minnesota 44343
017988 and 018008	III	Commonwealth Edison Dresden Nuclear Power Station P. O. Box 767 Chicago, Illinois
017995 and 017996	III	Commonwealth Edison Zion Generating Station P. O. Box 767 Chicago, Illinois
017974 and 017997	I	Northeast Nuclear Energy Co. Box 28 Waterford, Connecticut 06385
017975 and 017981	II	Tennessee Valley Authority Attn: H. G. Parris Manager of Power 500A Chestnut Street Tower II Chattanooga, Tennessee
017976	I	Owens-Illinois Leon Ostrowski Old Boston Road Pittston, Pennsylvania 18640
017977	I	Combustion Engineering, Inc. 1000 Prospect Hill Road Power Systems Group Windsor, Connecticut 06099

<u>SSR NO.</u>	<u>NRC REGION</u>	<u>SHIPPER</u>
017978 and 017984	II	Duke Power Company Oconee Nuclear Station Attn: Mr. William O. Parker Vice President P. O. Box 2178 422 South Church Street Charlotte, North Carolina 28242
017979	II	Carolina Power and Light Company Attn: J. A. Jones, Executive Vice President 411 Fayetteville Street Raleigh, North Carolina 27602
017980	I	Baltimore Gas and Electric Company Calvert Cliffs Nuclear Power Plant Gas and Electric Building Baltimore, Maryland 21203
017982	I	Southwest Nuclear Company 906 Montgomery Street Sawrel, Maryland 20810
017987	I	Public Service Electric and Gas 80 Park Place Newark, New Jersey 07101 Docket No. 50-272
017989	II	Virginia Electric and Power Company Attn: W. L. Proffitt, Senior Vice President Power P. O. Box 26666 Richmond, Virginia 23261
017995	III	Monsanto Research Corporation Mound Facility P. O. Box 32 Miamisburg, Ohio 45342
017998	III	Honeywell, Inc. 600 - 2nd Street, N.E. Hopkins, Minnesota 55343
017999	II	Indiana and Michigan Power Company 2 Broadway New York, New York 10004
018000	III	Northern States Power Company 414 Nicollet Mall 8th Floor Minneapolis, Minnesota 55401



<u>SSR NO.</u>	<u>NRC REGION</u>	<u>SHIPPER</u>
018001	III	Kerr McGee Chemical Systems 258 Ann Street West Chicago, Illinois 60185
018003	V	Fairchild AFB Washington 99011
018004	IV	USPFD For Idaho P. O. Box 45 Boise, Idaho 83707
018005	IV	Hill AFB T. O. Ogden, AIC Utah 84056
018006	III	Department of the Army Rock Island Arsenal Logistics Support Directorate Rock Island, Illinois 61299
018007 and 018011	I	Consolidated Edison Company of New York, Inc. 4 Irving Place New York, New York
018009	III	Wisconsin Public Service Corporation P. O. Box 1200 Green Bay, Wisconsin 54305
018010	I	Philadelphia Electric Company Peach Bottom Plant P. O. Box 8699 Philadelphia, Pennsylvania 19101 Docket Nos. 50-277 and 50-278
018012	I	Power Authority of the State of New York J. A. Fitzpatrick Nuclear Plant 10 Columbus Circle New York, New York 10019
018013	I	Westinghouse Electric Corporation 3 Gateway Center P. O. Box 355 Pittsburg, Pennsylvania 15230