



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. 80-02A

Reference: TI 2840/1, (Rev. 1), "Waste Packaging Inspections", 10/10/79

Licensee-
Shipper: See Attachment A

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

Inspector: *J. P. Potter for*
R. A. Brown, Radiation Specialist,
FF&MS Section, FF&MS Branch

2/20/80
Date Signed

Approved by: *J. P. Potter*
J. P. Potter, Chief, FF&MS Section, FF&MS Branch

2/20/80
Date Signed

SUMMARY

Inspection Dates: February 6-8, 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 29 shipments, no items of non-compliance were identified.

DETAILS

1. Persons Contacted

R. Sappington, South Carolina DHEC
E. Williams, South Carolina DHEC
S. Finklea, South Carolina DHEC
J. Shuler, USDOT
R. Tate, USDOT
D. Smith, USDOT
F. Punch, USDOT
J. O'Connell, USDOT

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

Twenty-nine shipments were inspected during the period of February 6-8, 1980. A listing of the shippers inspected and their assigned 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 or 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 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.

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.,	-	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 173.393a

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 items of noncompliance were noted.

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ATTACHMENT A

ADDRESSEE LIST

<u>SSR No.</u>	<u>NRC Region</u>	<u>Carrier</u>	<u>Trailer No.</u>	<u>Licensee- Shipper</u>
018639	I	Tri-State	72485	Philadelphia Electric
018642	I	Hittman	72237	Peach Bottom
018660	I	Hittman	72233	Docket No. 50-277
018650	I	NL Ind.	71522	NL Industries
018655	I	NL Ind.	9079	1130 Central Avenue Albany, NY 12205
018640	I	McCormack	34	Vermont Yankee Nuclear Power Corporation 20 Turnpike Rd. Westfare, MA 01581 Docket No. 50-271
018657	I	Chem-Nuclear	28	Northeast Nuclear Energy Company Millstone Plant P. O. Box 270 Hartford, CT Docket No. 50-245
018661	I	McCormack	217	Jersey Central Power and Light Oyster Creek Plant Madison Avenue Morristown, NJ 07960 Docket No. 50-219
018668	I	Saunders	037	Duquesne Light Company 435 Sixth Avenue Pittsburg, PA 15219
018655	I	Tri-State	440278	Tech-Ops Burlington, MA
018654	I	Tri-State	440152	Babcock and Wilcox Company 609 North Warren Avenue Apollo, PA 15618 License No. SNM-145

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<u>SSR No.</u> (Continued)	<u>NRC Region</u>	<u>Carrier</u>	<u>Trailer No.</u>	<u>Licensee- Shipper</u>
018658	I	Spector	23250	Nuclear Metals, Inc. 2229 Main Street Concord, MA
018647 018663	II	Chem-Nuclear Tri-State	041 128100	Florida Power and Light Turkey Point Plant 9250 W. Flagler Street P. O. Box 013100 Miami, FL 33101 Docket No. 50-250
018645 018677	II	Chem-Nuclear Tri-State	038 440225	Carolina Power and Light Company Brunswick Plant 411 Fayetteville Street Raleigh, NC 27602 Docket No. 50-325
018635 018675	II	Tri-State Tri-State	TV-45 TV-83	Tennessee Valley Authority Browns Ferry 500A Chestnut Street Tower II Chattanooga, TN 37401 Docket No. 50-259
018659	II	Tri-State	544146	Virginia Electric and Power Company North Anna Plant P. O. Box 26666 Richmond, VA 23261 Docket No. 50-338
018664	II	Chem-Nuclear	012	Duke Power Company Oconee Plant 422 S. Church Street Charlotte, NC 28242 Docket No. 50-269
018652	II	Chem-Nuclear	14	Medical College of Georgia Augusta, GA
018653 018644	III	Hacke Hacke	72231 72228	Commonwealth Edison Company Zion Plant P. O. Box 767 Chicago, IL Docket No. 50-254
018676 018639	III	Hittman Hittman	72236 72484	Commonwealth Edison Company Quad-Cities Plant P. O. Box 767 Chicago, IL Docket No. 50-254

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Attachment A

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<u>SSR No.</u> (Continued)	<u>NRC Region</u>	<u>Carrier</u>	<u>Trailer No.</u>	<u>Licensee- Shipper</u>
018674 018651	III	Hittman Hittman	72229 72230	Commonwealth Edison Company Dresden Plant P. O. Box 767 Chicago, IL Docket No. 50-010
018662	III	Home Transport	444010	Kerr-McGee Chemical Company West Chicago, IL