



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

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Special Report: WASTE PACKAGING INSPECTIONS OF LICENSEE-SHIPPIERS REPORT NO. 79-06A

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

Licensee-
 Shipper: See Attached Addressee List

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

Inspector: *R. A. Brown* 12/12/79
 R. A. Brown, Radiation Specialist,
 FF&MS Section, FF&MS Branch Date Signed

Approved by: *J. P. Potter* 12/12/79
 J. P. Potter, Chief, FF&MS Section, FF&MS Branch Date Signed

SUMMARY

Inspection Dates: November 26-28, 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 29 shipments, no items of noncompliance were identified.

DETAILS

1. Persons Contacted

D. Ebenhack, Chem-Nuclear Systems, Inc.
J. Ott, Chem-Nuclear Systems, Inc.
V. Autry, South Carolina Department of Health
D. McGlohorn, South Carolina Department of Health
R. Bluemle, South Carolina Department of Health

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

Twenty-nine (29) shipments were inspected during the period of November 26 to November 28, 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 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 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 173.38

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 or poor quality or damaged packaging.

One package was selected for opening. South Carolina officials were present and concurred in the opening of the packages.

No items of noncompliance were noted.



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ADDRESSEE LIST

017681 017699	Region I	Philadelphia Electric Company Peach Bottom Plant R. D. 1 Delta, Pennsylvania 17314 Docket No. 50-277
017680	Region I	Duquesne Light Company Shippingport, Pennsylvania Docket No. 50-334
017685	Region III	Honeywell Defense Systems 23100 Sugar Bush Road Elk River, Minnesota 55330 License No. 46-13530-01
017679	Region II	Georgia Power Company Hatch Plant Baxley, Georgia Docket No. 50-321
017687	Region II	Medical College of Georgia Box 517 Augusta, Georgia 30912
017688	Region III	Commonwealth Edison Quad Cities 22710 206 Avenue No. Cordeva, Illinois 61242
017689 017725	Region III	Indiana and Michigan Electric Company D. C. Cook Plant Bridgeman, Michigan Docket No. 50-315
017690 017706 017691 017724	Region II	Carolina Power and Light Box 458 Southport, North Carolina 28461 Docket No. 50-261
017703	Region I	Metropolitan Edison Three Mile Island - Unit 1 P. O. Box 542 Reading, Pennsylvania Docket No. 50-289
017701 017716 017707	Region III	Chemetron Corporation 2910 Harvard Avenue Newburgh Heights, Ohio 44105

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017704	Region III	Consumers Power Company Palisades Plants Covert, Michigan 49043 Docket No. 50-255
017695	Region I	Jersey Central Power and Light Oyster Creek Plant Morristown, New Jersey 07960 Docket No. 50-219
017702	Region I	Nuclear Metals, Inc. 2229 Main Street Concord, Massachusetts
017709	Region II	Virginia Electric and Power Company North Anna Plant P. O. Box 26666 Richmond, Virginia 23261 Docket No. 50-338
017708	Region II	Florida Power Corporation Crystal River Plant 3201 34th Street South St. Petersburg, Florida 33733 Docket No. 50-302
017705	Region II	Union Carbide South Charleston, West Virginia
017727	Region II	Duke Power Company Oconee Plant 422 South Church Street Charlotte, North Carolina 28242 Docket No. 50-269
017723 017718	Region II	Tennessee Valley Authority Browns Ferry Plant 500A Chestnut Street Tower II Chattanooga, Tennessee 37401 Docket No. 50-259
017722	Region III	Kerr-McGee West Chicago, Illinois
017726	Region II	Georgia Institute of Technology Research Reactor Atlanta, Georgia Docket No. 50-160

ADDRESSEE LIST
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017726

Region I

Connecticut Yankee Atomic Power Co.
P. O. Box 270
Hartford, Connecticut
Docket No. 50-213