U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 30-12908/80-02

Docket No. 30-12908

License No. 31-17528-01 Priority _____ Category 4/D1

Licensee: Radiac Research Corporation

261 Kent Avenue

Brooklyn, New York 11211

Facility Name: Radiac

Inspection at: Brooklyn, New York

Inspection conducted: April 3, 1980

Inspectors: J Roth 5/23/80
J. Roth, Fuel Facilities Inspector date signed

_____ date signed

_____ date signed

Approved by: J Roth for 5/23/80
H. W. Crocker, Chief, Fuel Facility Projects Section, FF&MS Branch date signed

Inspection Summary:

Inspection on April 3, 1980 (Inspection Report No. 30-12908/80-02)
Areas Inspected: Special unannounced inspection by a region-based inspector of the licensee's transportation program. The inspection involved 5 inspector-hours onsite by one NRC inspector and was initiated on the day shift.
Results: No items of noncompliance with NRC regulations were identified. Three instances of failure to meet DOT requirements were identified. One container had an unsecure and open lid (paragraph 5), Another container had a puncture hole (paragraph 5). This container and three others were not labeled (paragraph 5).

Region I Form 12
(Rev. April 77)

DETAILS

1. Persons Contacted

*J. Tekin, President, Radiac Research Corporation
*A. Green, Operations Manager

* denotes those present at the exit interview.

2. Background

An NRC inspection of a shipment of low level radioactive waste from Radiac Research Corporation was conducted at the low level radioactive waste burial site operated by Nuclear Engineering Company at Richland, Washington. The shipment arrived at the burial site on December 17, 1979. Inspection Report No. 15000046/79-32 which details the inspection results is attached to this inspection report.

The shipment, described in Freight Bill Number 267314, consisted of 210 metal containers as Radioactive Materials N.O.S. Each container was assigned DOT white I, yellow II or yellow III labels and the truck was properly placarded.

During inspection 15000046/79-32, one container (No. 48733) was found open with the retaining ring unsecured, the security seal broken and the drum lid ajar; a second container (No. 66628) was impaired in that there was a puncture hole in the side of the drum approximately 2 1/2" x 1/2"; and four (4) containers (Nos. 66628, 51854, 56503 and 67175) were not labeled.

As a result of these findings an inspection was conducted at the licensee's facility in Brooklyn, New York to review his transportation program, to examine his procedures for the inspection and loading of low level radioactive waste bearing containers onto the transporting vehicle, and to review the circumstances concerning the identified items.

3. Description of Circumstances

Container No. 66628 was packaged by the generator, Yale University, New Haven, Connecticut, and picked up from the generator's site by Radiac Research Corporation on November 13, 1979. This container was a 55 gallon drum containing animal carcasses that were properly packaged in an inner 30 gallon drum. The package contained 4.1 millicuries of tritium and 0.1 millicuries of Sr-85. Upon arrival at the burial site the outer container was found to have a puncture hole in the side and was not properly labeled with a white I label. Through discussions with Radiac representatives the inspector determined that Yale University does not handle shipping containers with mechanical devices and thus could not have punctured the drum. Radiac, however, does handle shipping containers with mechanical devices.

Container No. 48733 was packaged by the generator, University of Connecticut, Farmington, Connecticut and picked up from the generator's site by Radiac on November 27, 1979. This container was a 55 gallon drum containing liquid scintillation vials (LSV) that were properly packaged. The package contained 0.025 millicuries of C-14 and 1.0 millicurie of Ca-45. Upon arrival at the burial site the container was found to be open as described previously in Paragraph 2. Radiac representatives indicated to the inspector that the container was closed and sealed upon arrival at their facility and that they make it a practice to tighten sealing ring bolts prior to transhipment to the burial site. In this case Radiac representatives indicated that they may not have checked the tightness of the sealing ring bolts.

Containers No. 51854 and 67175 were packaged by the generator, Universal Diagnostics, Brooklyn, New York, and picked up from the generator's site by Radiac on November 30, 1979. These packages were 30 gallon drums containing liquid scintillation vials (LSV) that were properly packaged. Each package contained 0.1 millicurie of tritium. Container No. 56503 was packaged by the generator, Presbyterian Hospital, Philadelphia, Pennsylvania, and picked up from the generator's site by Radiac on October 18, 1979. This package was a 55 gallon drum containing 0.02 millicuries of I-125 and 0.02 millicuries of Ce-141 as the most active isotopes. Upon arrival at the burial site these three containers were found to have no radioactive material shipping labels (DOT white I) attached. Radiac representatives indicated to the inspector that they make it a practice to check containers for proper labeling prior to loading onto a trailer for shipment to the burial site but may have missed the fact that these containers and container number 66628 were not properly labeled.

The inspector determined that the five shipping containers were part of a shipment which left the broker's site on December 10, 1979 after having been stored for varying periods of time ranging from 10 to 53 days as shown below:

Container No.	Onsite Storage Time (days)
51854	10
67175	10
48733	13
66628	27
56503	53

4. Review of Procedures

a. Generators

Radiac Research Corporation has issued a set of instructions to each generator of radioactive waste material who is serviced. These instructions

consist of the applicable waste burial site packaging criteria. Included in these instructions are: DOT package requirements including, designation of chemical form, package quantity limitations, packaged material limitations, radiation level requirements, contamination level requirements, labeling requirements, and container marking requirements. Specific instructions are also included for the packaging of liquid scintillation vials; in vitro waste; absorbed liquids; solidified liquids; animal carcasses; biological, pathogenic or infectious material; and, transuranic waste.

b. Employee Procedures

The responsibility of each worker is specified in the licensee's NRC approved license application dated November 14, 1977 which also incorporates operating procedures concerned with Emergency procedures and Receiving and Storage into the facility NRC license. The Receiving and Storage procedure establishes the procedure for picking up packaged waste from the generator and storing the packaged waste in the facility warehouse.

In response to a letter from the State of Washington concerning the identified items, the licensee has written and implemented a Quality Assurance Program which requires that each container of radioactive waste will be inspected prior to removal from the generator's facility and during the loading of the shipment onto the trailer going to the burial site.

5. Findings

-- The inspector determined that the licensee was shipping radioactive waste to the burial site as specified in 49 CFR 173.395(a) which must be packaged in Specification 7A type A containers and is subject to the applicable requirements of paragraphs 173.24 and 173.393.

-- Drum No. 48733, which arrived at the burial site with the retaining ring unsecured, the seal broken and the lid of the drum ajar, failed to meet the requirements of 49 CFR 173.393(n)(3) which states that prior to each shipment of any package, the shipper shall insure by examination or appropriate test that each closure device, of the packaging, is properly installed and secured and free of defects.

-- Drum No. 66628 which arrived at the burial site with a puncture in the side of the drum failed to meet the requirements of 49 CFR 173.393(n)(2) which states that prior to each shipment of any package, the shipper shall insure by examination or appropriate test that the packaging is in unimpaired physical condition except for superficial marks.

-- Drums 51854, 56503, 66628 and 67175, which arrived at the burial site without labels attached, failed to meet the requirements of 49 CFR 172.403(a) which states that unless excepted from labeling by 173.391 or 173.392, each package of radioactive material must be labeled as provided in this section.

-- In making this shipment, the licensee was subject to the conditions of the New York State License No. 1944-1879 and the regulations of the U.S. Department of Transportation.

6. Corrective Actions

In response to a letter from the State of Washington, dated January 4, 1980, concerning the identified items, the licensee has written and implemented a Quality Assurance Program. This program requires that each container of radioactive waste will be inspected prior to removal from the customer's premises and during loading onto the trailer going to the burial site to assure that appropriate DOT containers are used; the integrity of the container has not been impaired; the container has been properly bolted and incorporates a security seal; the containers are properly labeled; radiation levels are in compliance with DOT and NRC regulations; and, the container has been properly weighed and marked if in excess of 110 pounds.

7. Observations

The inspector observed the loading of waste containing drums onto "Tri-State" trailer number 440180. The licensee was checking each container for damage, proper labeling, completion of information on labels, adequate seal and radiation level.

8. Exit Interview

The inspector met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection at 12:15 p.m. on April 3, 1980. The inspector presented the scope and findings of the inspection.

9. Attachment

Office of Inspection and Enforcement Inspection Report No. 15000046/79-32