

SHIPMENT OF RADIOACTIVE MATERIAL IN
TYPE "A", TYPE "B" & HIGHWAY ROUTE CONTROLLED QUANTITIES

1.0 GENERAL

The shipment of normal form radioactive materials in Type "A", Type "B," or highway route controlled quantities may be made provided that the conditions of this procedure are met.

2.0 REFERENCES

- 2.1 10 CFR 71, Packaging of Radioactive Material for Transportation
- 2.2 49 CFR Parts 100 to 199, Transportation
- 2.3 Package Certificates of Compliance file HP 2.6
- 2.4 IE Information Notice No. 80-32, Revision 1, Clarification of Certain Requirements for Exclusive Use Shipments of Radioactive Materials
- 2.5 NUREG-0923, Advance Notification of Shipments of Nuclear Waste and Spent Fuel
- 2.6 State of Washington Radioactive Materials License No. WN-I019-2 issued to U.S. Ecology, Inc., expiration date November 30, 1985
- 2.7 Barnwell Waste Management Facility State Disposal Criteria for Chem Nuclear System, Inc., Barnwell Office. Document No. S20-AD-010

3.0 SHIPMENT OF RADIOACTIVE MATERIAL IN TYPE "A", TYPE "B", OR HIGHWAY ROUTE CONTROLLED QUANTITIES

- 3.1 Determine the "quantity" designation of normal form radioactive material to be shipped from the definitions given in RDW 5.1.

3.2 Shipping Package Selection

Refer to procedure RDW 5.10 to select a shipping package.

3.3 General Packaging and Shipment Requirements
(49 CFR 173.412 & 173.448)

In addition to the specific requirements for each type of package (cask) used, the following requirements must be complied with.

- 3.3.1 The outside of each package must be sealed, which, while intact, will be evidence that the package has not been illicitly opened.

- 3.3.2 The smallest outside dimension of any package must be 4 inches or greater.
- 3.3.3 Internal bracing or cushioning, if required, must be adequate to assure that, under the conditions normally incident to transportation, the inner containers do not shift substantially and the radiation dose rate external to the package does not exceed the transport index number shown on the label.
- 3.3.4 Inner containers must be positively secured to prevent loss of contents.
- 3.3.5 Pyrophoric materials (highly flammable, spontaneously combustible, or water reactive) require special handling and will not be included in shipments from PBNP without the specific approval of the Superintendent - CHP. See 49 CFR 418 and 10 CFR 61.56 for packaging requirements.

In addition, any shipment of pyrophoric material to the Richland, WA burial site first requires the approval of the State of Washington while the Barnwell, SC site criteria states that pyrophoric material will be treated, prepared and packaged to be non-flammable and rendered non-pyrophoric prior to shipment.

- 3.3.6 Liquid radioactive material in Type "A" quantities must be packaged in or within a leak resistant and corrosion resistant inner container.
- 3.3.7 Absorbent material must be provided to absorb at least twice the volume of any radioactive liquid contents.

NOTE: PACKAGES CONTAINING RADIOACTIVE LIQUIDS MAY BE SHIPPED TO ANOTHER LICENSEE PROVIDED THE REQUIRED AMOUNT OF ABSORBANT IS INCLUDED. PACKAGES OF RADIOACTIVE WASTE SPECIFICALLY SENT TO A BURIAL SITE MAY CONTAIN NO MORE THAN 0.5% LIQUID BY VOLUME OR ONE GALLON, WHICHEVER IS LESS.

- 3.3.8 A secondary leak resistant and corrosion resistant container must be provided to retain the radioactive liquids should the inner container fail during shipment.
- 3.3.9 The package must be securely closed by a positive fastening device that cannot be opened unintentionally or by pressure that may arise within the package during normal transport.

- 3.3.10 No package may be transported aboard a passenger-carrying aircraft if its transport index exceeds 3.0.
- 3.3.11 A 17H steel drum, 55-gallon size, certified as a DOT Specification 7A, Type "A" package, may weigh no more than 840 pounds when loaded.
- 3.4 The level of removable radioactive contamination on any package must not exceed the limits specified in RDW 5.7, Section 5.
- 3.5 The external radiation readings from any package must not exceed the limits specified in RDW 5.7, Section 6.
- 3.6 Highway Route Controlled Quantity - Routing & Training
(49 CFR 177.825)
- 3.6.1 Prior to the departure of a highway route controlled quantity shipment, obtain a copy of the route plan from the carrier. Check that the carrier has also supplied the driver with a copy of the route plan.
- Any variation between the route plan and the routes actually used, and the reason for it, shall be reported to PBNP by the carrier within 30 days following the deviation.
- The route plan shall contain:
- a. The selected route
 - b. All planned stopping points
 - c. Estimated departure and arrival times
- 3.6.2 Check that the driver has a written certificate of training in his possession which shows:
- a. The driver's name and operator's license number.
 - b. The dates on which training was provided.
 - c. The name and address of the instructor.
 - d. That the driver has been trained in the hazards and characteristics of large quantity radioactive materials.
 - e. A statement by the instructor that the information provided on the certificate is accurate.

4.0 SHIPMENT NOTIFICATIONS

In the following situations, appropriate notifications must be made before and after each shipment in accordance with RDW 5.8, Section 7.0.

- 4.1 Any shipment involving a greater than Type "A" quantity of radioactive material.
- 4.2 Depending on the amount of radioactive material involved, each shipment of radioactive waste across state lines to a burial site. Notifications are required only when the radioactive material is required by 10 CFR 71 to be in Type "B" packaging for transportation purposes.