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UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

September 7, 1979

IE Information Notice No. 79-21

TRANSPORTATION AND COMMERCIAL BURIAL OF RADIOACTIVE MATERIAL

On July 10, 1979, the Governors of the Agreement States of Nevada, South Carolina, and Washington notified NRC Chairman Hendrie of the serious and repeated disregard for the rules governing the shipments of low-level radioactive wastes to their burial facilities. The problems causing the Governors' concern may be summarized as contaminated packages; improper loading of packages which results in unnecessary radiation exposure; packages containing liquids when liquids or free-standing water are not authorized to be buried; leaking packages; improper labeling of packages; and improper paperwork for shipments.

Recently, you should have received either IE Bulletin No. 79-19 or 79-20 on this subject. The enclosures to this Notice provide information regarding the regulatory requirements for the packaging, transportation and disposal of radioactive material. The requirements for packaging and transport referenced herein are applicable to shipments of all radioactive material.

The enclosed summary of radioactive waste burial criteria defines the current burial-site license and State requirements on waste form and packaging. A summary of the requirements for transportation is in the enclosed DOT publication, "A Review of the DOT Regulations for Transportation of Radioactive Materials." The enclosures are intended only as a convenient reference; they are neither a substitute for the actual regulations nor a copy of the burial site license or other burial site documents. The DOT regulatory requirements can be found in 49 CFR Parts 170-179 (Oct. 1, 1977). The NRC requirements are in 10 CFR Part 71.

To conduct your waste disposal operations properly you must comply with NRC and DOT requirements for packaging and transportation, and the waste packaged for eventual disposal at any of the three operating waste-burial sites must be in a form authorized in the particular burial-site license and State requirements. To assure that the latter requirements are met, you should coordinate your waste disposal activities with the waste collection companies and/or the waste burial site operators. The sites receiving wastes for burial are operated either by the Nuclear Engineering Co., Inc. (502-426-7160), or Chem-Nuclear Systems, Inc. (206-827-0711).

Questions about licensing requirements for NRC packages can be addressed to the NRC's Transportation Branch (301-427-4122). Questions about DOT packaging and transport requirements can be addressed to the Materials Transportation Bureau of DOT (202-426-2311). Questions about the IE Bulletins or this Information Notice can be addressed to the appropriate NRC Regional Office listed in 10 CFR Part 20, Appendix D.

No written response to this Information Notice is required.

Enclosures:
1. Burial Criteria
2. DOT Publication

LOW-LEVEL RADIOACTIVE WASTE BURIAL CRITERIA AS OF JULY 11, 1979

WASTE FORM	SITE		
	South Carolina[1]	Nevada[2]	Washington[3]
1. Liquid scintillation fluids packed in 2x absorbent[4] :			
(a) vermiculite as absorbent	Disposal not permitted	Disposal permitted but specific approval required	Disposal permitted but specific approval required
(b) diatomaceous earth as absorbent	Not permitted	Permitted	Permitted
(c) other absorbents (not rags, tissue etc.)	Not permitted	Specific approval required	Specific approval required
2. Other liquids packed in 2x absorbent[4] for immobilization	Not permitted	Not Permitted	Permitted, but no free standing liquid
3. Unpackaged bulk solids (e.g. ores, rubble)	Permitted but specific approval required	Permitted but specific approval required	Not Permitted
4. Solidification media:			
(a) cement, urea for formaldehyde, Dow media, Delaware custom	Permitted for aqueous wastes	Permitted	Permitted
(b) other	Not permitted	Permitted	Permitted
5. Radiological hazard greater than chemical unless specifically approved	Permitted	Permitted	Permitted
6. Pyrophoric material	Not permitted	Not permitted unless specifically approved	Not permitted unless specifically approved

1 Barnwell, S.C., operated by Chem-Nuclear.
2 Beatty, Nevada, operated by NECO.
3 Hanford, Washington, operated by NECO.
4 Liquids alternated with layers of absorbent form the most effective packaging (2x absorbent for liquid present or likely to be formed in transit).

LOW-LEVEL RADIOACTIVE WASTE BURIAL CRITERIA
AS OF JULY 11, 1979
-Continued-

WASTE FORM	SITE		
	South Carolina[1]	Nevada[2]	Washington[3]
7. Biological wastes (e.g., carcasses) packed in equivalent to 2x absorbent[4]	Permitted, but rock salt to preserve is preferred.	Permitted	Permitted
8. Oil Content	No more than 1% by volume.	No specification	No specification
9. Dewatered resins	Permitted	Permitted	Permitted
10. Evaporator bottoms	Must be solidified with agents in #4.	Must be a solid	Must be a solid
11. KE 85 and Xe 133	Permitted in DOT pkg, 1.5 atm, 100 Ci/pkg.	Permitted in DOT pkg, 1 atm, 100 Ci/pkg, 1000 Ci in special pkg.	Permitted in DOT pkg, 1.5 atm, Ci/pkg.
12. Curie content per package for radiation control and handling.	Special if > 2500 Ci.	Special if > 1600 Ci for dispersed or if > 50 Ci for sealed sources.	Special handling for large quantities.
13. Transuranics greater than 10 nanocuries/gram	Not permitted	Not permitted	Permitted
14. SNM package content	Special if > 50 g.	350 g U-235 or 200 g U-233 or ratio ≤ 1.	100 g U-232 or 60 g U-233 or Pu or ratio ≤ 1; ≤ 15g/ft^3.
15. DOT containers as received at the site	Permitted	Permitted except fiberboard or cardboard or similar materials	Permitted
16. Liners removed from DOT shipping containers	Permitted	Permitted	Permitted