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Received: 27 Oct 98



DEPARTMENT OF THE NAVY
NAVY ENVIRONMENTAL HEALTH CENTER
2510 WALMER AVENUE
NORFOLK, VIRGINIA 23513-2617

6470
Ser OM/01533
9 Oct 98

From: Commanding Officer, Navy Environmental Health Center

Subj: NAVY RADIOACTIVE MATERIAL PERMIT (NRMP) WASTE DISPOSAL
INCIDENT (NRMP INFORMATION NOTICE 98-2)

Ref: (a) 10 CFR Parts 20, 61, 71
(b) 49 CFR Parts 171-173
(c) NAVENVIRHLTHCEN ltr 6470 Ser OMSJW/09416 of 11 Apr 97
(d) 10 CFR Part 35.92
(e) NAVENVIRHLTHCEN ltr 6470 Ser OMSJW/09418 of 15 Apr 97
(f) 10 CFR Part 35.59(g)
(g) 10 CFR Part 35.67(g) Proposed Rule dated 13 Aug 98
(h) U. S. Nuclear Regulatory Commission Regulatory
Guide 10.8, Appendix M

Encl: (1) NRMP Deficiency Report
(2) OPNAV NOTICE 5100 of 7 Apr 92

1. References (a) and (b), among others, regulate waste shipment and disposal. The shipment and disposal of radioactive waste is a complex process, and if performed incorrectly, it can have wide-reaching implications. Any breach of procedures can potentially stop radioactive waste shipments throughout the Department of Defense (DOD). Therefore, DOD established a Low-Level Radioactive Waste (LLRW) Disposal Program to ensure that all technical and legal aspects of LLRW disposal are met and that qualified brokers, shippers, and disposal sites are used. The DOD LLRW Program also realizes monetary benefits by being able to award large volume disposal contracts for a specified state or region of the country containing various DOD activities within close proximity.

2. Navy recently received notification from the Chem-Nuclear Consolidation Facility in South Carolina of an improper shipment for disposal. As a result of the incident Navy Environmental Health Center (NAVENVIRHLTHCEN) conducted a reactive inspection. Enclosure (1) lists the violations identified during the inspection.

3. Investigation revealed that LLRW waste from a Naval hospital contained untreated biological materials which are not authorized under the LLRW Program without special processing and documentation. Based on the small quantity of biologicals and the low risk involved, the State of South Carolina authorized

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burial of the waste through normal procedures. However, the Navy incurred additional cost and the DoD LLRW Disposal Program will receive written notification of noncompliance from the waste processor.

4. The cause of the improper shipment was inadequate supervision of students placing material in the LLRW shipment barrel. This resulted in the inclusion of the untreated biological material that was intended for decay in storage. This was further complicated by the fact that the waste was compacted, which precluded inspection of the barrel's contents by the broker. I remind you that the Radiation Safety Officer (RSO) or his/her designee must personally approve all radioactive material transfers as directed by reference (c). However, this does not include signing the manifest for a LLRW shipment. Under the DoD LLRW Program, the broker will sign the manifest after he/she visually inventories and packs the items. Henceforth, the broker will not ship any waste that he/she has not visualized before packaging.

5. Per reference (d), decay in storage is an effective means of reducing waste and saving thousands of dollars in waste disposal costs. This regulation allows radioactive material with a half-life less than 65 days to be held for ten half-lives and then disposed of as normal trash. The 65-day half-life limit can be extended to 120 days by an amendment to your NRMP.

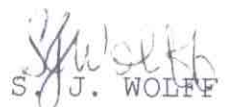
6. For long-lived isotopes, the LLRW Program funds disposal of your waste. Enclosure (2) provides guidelines on eligible disposal items and shipment request procedures. OPNAVINST 6470.3 mandates that Navy Commanders, Commanding Officers, and Officers in Charge dispose of LLRW only under authorization from Naval Sea Systems Command Detachment, Radiological Affairs Support Office (RASO) at DSN 953-4692 or (757) 887-4692. RASO's LLRW Director is Ms. Laurie Miller. A copy of each disposal request shall be forwarded to NAVENVIRHLTHCEN.

7. A major goal of the Naval Radiation Safety Committee (NRSC) is to reduce the Navy-wide inventory of unnecessary radioactive materials. The two methods described above must be aggressively applied to your program to accomplish this goal. Please review your local procedures and ensure that you maintain only those radioactive materials necessary to accomplish your command mission.

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8. Reference (e) directs you to inventory all your sealed and unsealed sources every six months. This requirement is being added to all NRMP amendments and renewals. The NRSC is now requiring stored waste to be included as part of the six month inventory. Waste includes bags, boxes, barrels, or other containers being held for LLRW disposal or decay in storage. This inventory will facilitate your identification of unnecessary radioactive material onboard. Per reference (f) hospitals are required to inventory sealed sources quarterly, but reference (g) is expected to change this requirement to a semi-annual inventory as well. Patient doses must still be tracked as in the model procedures of reference (h).

9. For further information, contact the Radiation Health Team at DSN 253-5575 or (757) 462-5575 or by E-mail at wolffsj@nehc.med.navy.mil.


S. J. WOLFF
By direction

Distribution:
All Medical Radiation Safety Officers

Copy to:
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NAVSEA DET RASO Yorktown VA
NSHS Bethesda, MD (Attn: Clinical Nuclear Medicine School)
NAVUSEAMEDINSTITUTE Groton, CT

NRMP Deficiency Report

The following deficiencies were identified:

- a. 10 CFR 30.41 states that a licensee may transfer licensed material to any person authorized to receive such material.

Contrary to the above, the permittee offered for shipment a 55-gallon drum of radioactive waste which included untreated biological materials that are not authorized for receipt by the waste processor under their license. This is a severity level four deficiency.

Shipment of these items in this manner is also unauthorized under the Department of Defense Low Level Radioactive Waste disposal program, which is intended for disposal of long-lived isotopes. These items were intended for decay in storage followed by incineration as medical waste in accordance with 10 CFR 35.92. Inadequately supervised trainees placed them in the barrel.

The safety significance of the unauthorized materials is small if handled and treated properly. Rubber gloves and chlorine bleach are adequate controls. Even if the barrel in question had been buried without processing, no public or environmental health hazard would have ensued.

- b. 49 CFR 172.203(d) requires in subparagraphs (2) and (4) that the shipping paper description for a Class 7 (radioactive) material shipment include the name of each radionuclide and the activity in each package.

Contrary to the above, the permittee offered for shipment a 55-gallon drum of radioactive waste with a manifest listing only 115 microcuries of hydrogen-3. However, the shipment contained an additional 6 microcuries of iodine-125 and 0.02 microcuries of chromium-51. This is a severity level four deficiency.

These isotopes were in waste material generated in the nuclear medicine radioimmunoassay laboratory. This material was intended for decay in storage but was inadvertently included in the waste barrel. The radiological significance of these additional isotopes is small due to the low activity and short half lives involved.

Enclosure (1)

c. The permittee is authorized to receive, store and ship radioactive waste from tenant commands. In their permit application, waste handling procedures were submitted that did not include compaction of the waste. Relevant permit conditions restrict the command to the procedures specified in the application package.

Contrary to these procedures, the permittee routinely compacted waste prior to shipment, a procedure not authorized by their permit. This is a severity level four deficiency.

Although compaction itself is not a safety concern, the fact that it precluded the waste broker from verifying the contents of the drum contributed significantly to this incident.

DEPARTMENT OF THE NAVY
Office of the Chief of Naval Operations
Washington, DC 20350-2000

Canc: Mar 93
OPNAVNOTE 5100
Ser 455/2U601665
7 April 1992

OPNAV NOTICE 5100

From: Chief of Naval Operations
To: All Ships and Stations
Subj: LOW LEVEL RADIOACTIVE WASTE
(LLRW) DISPOSAL PROGRAM
Ref: (a) OPNAVINST 6470.3
(b) OPNAVINST 5100.8G
(c) NAVSEAINST 5100.18A

1. **Purpose.** To establish policy for disposal of low level radioactive waste (LLRW).

2. **Scope.** This notice applies to all Department of the Navy (DON) activities engaged in the operational or medical use, handling or storage of radioactive material (RAM), or devices and commodities containing RAM. It does not apply to activities using radioactive materials transferred from the Department of Energy to the Department of Defense in accordance with Section 91B of the Atomic Energy Act of 1954, as amended. Presidential Executive Order 12344, statutorily prescribed by Public Law No. 98-525, 42 U.S.C. § 7158 note (1984), establishes the responsibilities and authorities of the Director, Naval Nuclear Propulsion Program (OP-OON) (who is also the Deputy Commander, Nuclear Propulsion Directorate in the Naval Sea Systems Command), including prescription of standards and requirements for the control and disposition of radioactive materials associated with the program. Accordingly, the provisions of this notice do not apply to the management of radioactive materials associated with the Naval Nuclear Propulsion Program.

3. **Cancellation.** NAVSUPINST 5101.9B.

4. **Background.** Reference (a) established the Navy Radiation Safety Committee (NRSC) to control the use of RAM within Navy and Marine Corps. This responsibility includes its ultimate disposal. References (b) and (c) establish

Commander, Naval Sea Systems Command (COMNAVSEASYSKOM) as the program manager for the disposal of radioactive waste. Significant changes in national policy and federal regulations concerning the disposal of LLRW have made it necessary to institute a program which is both responsive to the user and cost effective.

5. **Discussion.** The Navy LLRW disposal program provides a means to minimize quantities of RAM stored at sites worldwide and reduces the potential for radioactive contamination and personnel radiation exposures. The central component of the program is an Interservice Support Agreement (ISSA) between DON and Department of the Army (DOA) for consolidation, compaction and burial of LLRW. In the ISSA, the waste generator will normally pay only transportation costs, not actual burial costs. In those cases requiring extensive on-site assistance, other costs may apply. This ISSA will not only yield a cost savings, but will also provide a positive method of controlling and recording for posterity individual LLRW shipments.

6. **Definition**

a. For the purposes of this program, LLRW is defined as:

(1) Surplus, unwanted or unserviceable devices, commodities, instruments and articles readily identifiable as containing radioactive material.

(2) Radioactive material for which there is no longer a useful purpose.

(3) Property contaminated with radioactive material to the extent that decontamination is economically unfeasible.

(4) Radioactive residue from decontamination operations.

ENCLOSURE (2)

(5) Animal tissue contaminated with radioactive material except as noted below.

NOTE: Before the items listed in (a) (1) and (a) (2) above are declared LLRW, every attempt shall be made to have them returned to the manufacturer or transferred to another activity or facility that has a use for and is authorized to possess the material. They should be declared waste only after such actions are unsuccessful.

b. For the purposes of this program, LLRW does NOT include:

(1) 0.05 microcuries, or less, of Hydrogen-3 or Carbon-14 per gram of medium used for liquid scintillation counting.

(2) 0.05 microcuries, or less, of Hydrogen-3 or Carbon-14 per gram of animal tissue, averaged over the weight of the entire animal.

(3) Excreta from individuals undergoing medical diagnosis or therapy with radioactive material.

(4) Radioactive material which is held for disposal by decay-in-storage or transferred to a commercial contractor authorized to receive the material for disposal by decay-in-storage.

7. Responsibilities

a. The Deputy Chief of Naval Operations (Logistics) (OP-04) is the resource sponsor for the program. The NRSC, chaired by Director, Environmental Protection, Safety and Occupational Health Division (OP-45) administers the program and shall:

(1) Be the sole point of contact with LLRW regional compacts, and state, federal and foreign agencies regarding Navy LLRW policy for radioactive materials within the scope of this notice.

(2) Be the routine point of contact between DON and the Nuclear Regulatory

Commission (NRC) concerning disposal of NRC licensed material.

(3) Provide guidance and resources to the program manager for execution of the LLRW program.

b. COMNAVSEASYSKOM (SEA-06GN) is the program manager and shall:

(1) Issue directives governing the program for disposal of LLRW.

(2) Provide management oversight of the operation of the LLRW disposal program.

c. Naval Sea Systems Command Detachment, Radiological Affairs Support Office (NAVSEADET RASO) is designated as the technical support center for execution of the program and shall:

(1) Manage the daily routine operation of the LLRW disposal program.

(2) Provide authorization and specific written instructions to Navy and Marine Corps activities for each LLRW disposal transaction.

(3) Develop and maintain current operating procedures for disposal of classes of LLRW.

(4) Be the Navy agent for administration and operation of the ISSA with DOA.

(5) Maintain permanent records of each Navy and Marine Corps LLRW disposal transaction.

(6) Provide SEA 06GN and OP-45 with quarterly statistical summary of the LLRW disposal program and estimates of LLRW volume awaiting disposal.

d. Commanding Officers and Officers in Charge shall:

(1) Dispose of LLRW only through this program unless an alternate method is authorized in the applicable Navy Radioactive Materials Permit or by OP-45. Existing contracts for disposal of LLRW may continue in effect until complete.

(2) Dispose of LLRW only under authorization from NAVSEADET RASO.

(3) Comply with instructions and guidance issued by NAVSEA 06GN and NAVSEADET RASO for every LLRW disposal action.

8. Action. Navy and Marine Corps activities shall:

a. Institute actions with the technical support center NO LATER THAN 1 SEPTEMBER 1992 to arrange for disposal of all stored LLRW in accordance with this notice.

b. Dispose of all other LLRW by coordination with the technical support center as it is generated, rather than storing LLRW until large volumes are accumulated. LLRW should not routinely be accumulated or stored for periods greater than ninety days. LLRW shall not be shipped to SEA 06GN or NAVSEADET RASO.

S. F. LOFTUS
Deputy Chief of Naval
Operations (Logistics)

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