



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

Mr. Leonard J. Warbiany
ADCO Services, Inc.
17650 Duvan Drive
Tinley Park, Illinois 60477

MAY 6 1998

Dear Mr. Warbiany:

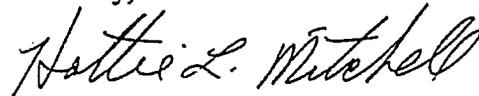
This is in response to your letter of March 20, 1998 requesting clarification relating to the classification radioactive waste shipments under the provisions of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180).

Your questions have been paraphrased and answered as follows:

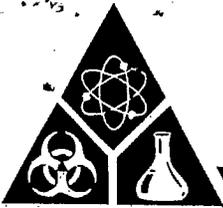
- Q1. Must a waste that meets the requirements of a limited quantity of radioactive material be described as "Radioactive Material, LSA, n.o.s.," UN 2912 or as "Radioactive material, n.o.s.," UN 2982?
- A1. A waste that meets the requirements of a limited quantity of radioactive material may be shipped in full conformance with the HMR. As such, the material may be described as "Radioactive Material, LSA, n.o.s.," UN 2912 or "Radioactive material, n.o.s.," UN 2982. When using either of these descriptions you may not take advantage of those exceptions in the limited quantity provision.
- Q2. Does the definition of radioactive material apply to mixed wastes (i.e., radioactive and flammable)?
- A2. Yes. Radioactive material is any **material** having a specific activity greater than 70 Bq per gram (0.002 microcurie per gram) (see definition of "specific activity"). However, as provided in § 173.423, when a limited quantity radioactive material meets the definition of another hazard class or division, it must be classed for the additional hazard unless the other hazard is a small quantity (see § 173.4).
- Q3. Are the steps outlined in the attachments correct?
- A3. The HMR governs the transportation of hazardous materials in commerce. Under § 173.22, it is the shipper's responsibility to properly classify a hazardous material. Such determinations are not required to be verified by this Office. However, it is the opinion of this office that the classification procedure described in your letter appears to be satisfactory.

- Q4. Does the definition of radioactive material apply to the weight of the package or just the material inside of the package?
- A4. The weight of the packaging may not be used to calculate the specific activity of the radioactive material inside the packaging (refer to the definition of "specific activity" in § 173.403).
- Q5. Can the Nuclear Regulatory Commission Forms 540 and 541 be used as shipping papers?
- A5. Under § 171.8 of the HMR, the "shipping paper" is the document that contains the information required by §§ 172.202, 172.203, 172.204 and 172.604 (a)(3). Therefore, your NRC forms 540 and 541 may be considered a shipping paper if it contains the information required by Part 172 Subpart C of the HMR.

Sincerely,



Hattie L. Mitchell, Chief
Regulatory Review and Reinvention
Office of Hazardous Materials Standards



ADCO

Services, Inc.

Blatts
File: 173,403

March 20, 1998

U.S. Department of Transportation RSPA
Office of Hazardous Standards
Edward Mazzullo, Director
DHM-10
400 7th Street S.W.
Washington, D.C. 20590

Dear Mr. Mazzullo,

I am writing this letter to get an official interpretation for the proper D.O.T. shipping name for Radioactive Waste shipments and related information.

First, let me give you a little back ground of the type of work that we perform. Adco Services, Inc./Adcom Express, Inc. is a Low Level Radioactive waste broker / transporter located in Tinley Park, Il, just southwest of Chicago, IL. Last September we had a Federal D.O.T. inspection performed by Jimmy Fox, and we were informed that the proper D.O.T. description we were using were incorrect. Basically we used "Radioactive Material, LSA, n.o.s., 7., UN2912" or "Radioactive Material, n.o.s., 7., UN 2982" for about everything.

We were told that we could not use a blanket description for all wastes because of the differences in waste weight, container size, radionuclides and activities. The inspector quoted the regulation regarding the definition of Radioactive Material (49CFR 173.403) and the regulations regarding Limited Quantity of Radioactive Material.

Basically he told us that if a particular package of waste met the criteria of limited quantity of material that the package must be shipped in this fashion (following all of the guidelines). Also that in order to ship a package as UN 2912 (LSA) the material must exceed the limited quantity requirements.

We did not exactly agree with this statement and I set out to prove him wrong. I had called about everyone I knew of at the time with D.O.T. experience and was told that they felt he was wrong but none of them were willing to put anything in writing or could they quote any regulations for me to follow. I was also told that it was the industry norm just to classify radioactive material as UN 2912 or UN 2982. Without being able to get anything official we had change our thinking on

proper D.O.T. descriptions. This was not a problem, just a little more work. We are more concerned with doing it right than making it easy.

I have enclosed the information we now give our drivers in determining the proper description to use and I would appreciate if you could review this information and respond to it. You will notice upon looking it over that we handle radioactive waste and mixed wastes with flammable liquids.

My questions are as follows:

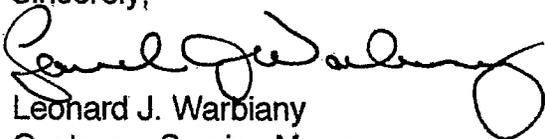
1. Do we in fact have to classify a waste that meets the requirements of Limited Quantity of Material as such, or do we have the option of calling this RAM UN 2912 or RAM UN 2982 because it also meets those requirements?
2. Does the definition of RAM apply to mixed wastes (radioactive/flammable) as well as just RAM material?
3. Could you please review the steps we are taking, in the attachments I enclosed, to determine if they are correct?
4. Does the definition of RAM apply to the weight of the package or just the material inside of the package?
5. We are currently using the NRC Forms 540 and 541 for the shipping papers accompanying our shipments. (Both from the generator to us and from us to the disposal sites) According to NRC regulations, these forms are intended for use when shipping waste to land disposal facility. Seeing as all the information that is required for transporting RAM, per 49 CFR, is also included on these forms, can these forms be used for any transportation of RAM?
6. We transport both wastes destined for land disposal as well as wastes that are not intended or acceptable for land disposal. (ie. mixed waste containing radioactive and flammable materials) We

have come upon a problem because a couple of our generators claim that these forms (540 and 541) were intended for use only to land disposal facilities and they are concerned that they may be accused of disposing of their mixed wastes at a land disposal facility. Nowhere in the regulations nor on the form does it state that these forms can only be used for land disposal. These forms meet the shipping requirements for manifesting according to 49 CFR and we wish to continue using these forms. The question is this, can we use the NRC Forms 540 and 541 for our shipments of mixed wastes (radioactive and flammable)?

I would appreciate a written response to my question, as we have a couple of customers who are disagreeing with our "new" descriptions and are threatening to use other brokers who are willing to do this their way. If you should have any questions or should need clarification on any of the questions, please feel free to contact me at 1-800-282-2326.

Thank you for your time.

Sincerely,

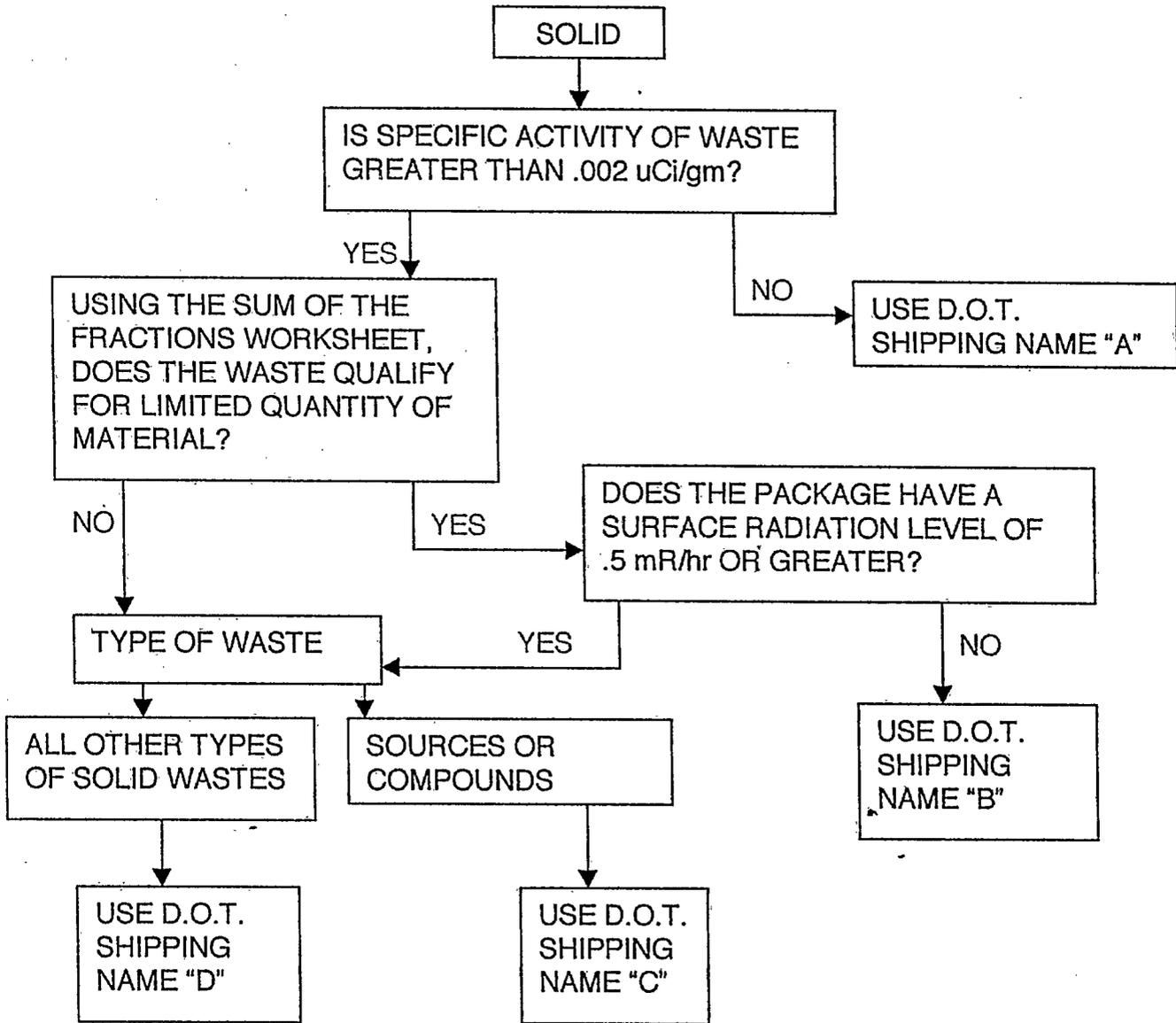


Leonard J. Warbany
Customer Service Manager
ADCO SERVICES, Inc.

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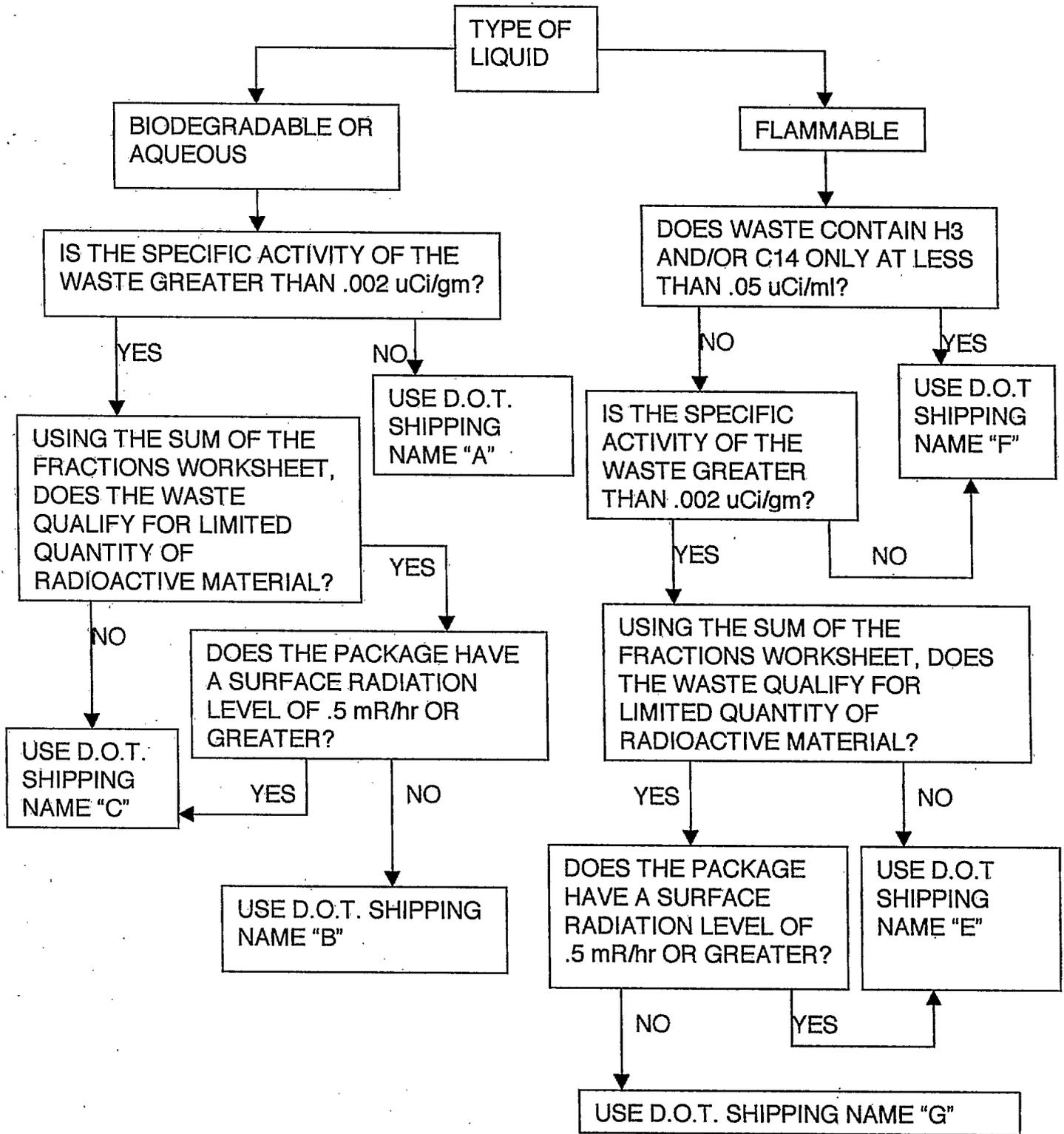
LW/me

**STEPS TO DETERMINE PROPER D.O.T. SHIPPING NAME
FOR SOLID WASTES*****



****NOTE: SOLID WASTES INCLUDE DAW, DIS, ANIMAL CARCASSES, BIOLOGICAL, ABSORBED LIQUIDS, SOURCES, COMPOUNDS OR ANY OTHER WASTES THAT NEED TO BE DISPOSED OF AT A BURIAL SITE.**

**STEPS TO DETERMINE PROPER D.O.T. SHIPPING NAME
FOR LIQUIDS****



NOTE: LIQUID WASTE INCLUDE FLAMMABLES, BIODEGRADABLE, AQUEOUS, BACTEC IN BULK OR VIALS OR ANY WASTE BEING SENT TO PERMAFIX.

APPENDIX D

STEPS TO DETERMINE PROPER D.O.T. SHIPPING DESCRIPTION

1. First determine if the material in the container is radioactive material in the first place. To do this, take the weight of the container (less the weight of the drum and multiply by 454. (There are 454 grams in one pound) This gives you the total weight of the material in grams. Multiply this figure by .002. This will give you the maximum activity per individual container to determine if the package is radioactive material by D.O.T. description. (49 CFR 173.403 – definition of RADIOACTIVE MATERIAL)

Example:

A drum of waste weighs 200 pounds.

200 pounds

minus 50 pounds drum weight

equals 150 pounds of waste.

150 pounds times 454 equals 68,100 grams,

68,100 grams times .002 equals 136.2 uCi maximum non-radioactive classification.

If the total activity of the package is less than 136.2 uCi then the proper D.O.T. shipping name is "NON-REGULATED MATERIAL" and no labeling is required on the container.

If this container is combined with other Radioactive Material packages on the same manifest, the most hazardous classed material must be listed first, or, listed in a different color, or, indicated by a Hazardous Material column on the shipping paper. (49 CFR 172.201 – a.1.i.,ii., or iii.)

2. If you have determined that the package is radioactive material, then proceed to find out if material is "Limited Quantity Radioactive Material" (49 CFR 173.421) or not. This

is accomplished by using the "SUM OF THE FRACTIONS WORKSHEET" attached. (See example attached.)

3. If the material is not "Limited Quantity of Radioactive Material" then the proper D.O.T. shipping name must be "Radioactive Material, LSA, N.O.S., 7., UN 2912" OR "RADIOACTIVE MATERIAL, N.O.S., 7., UN 2982" depending on the type of waste you have.
4. PROPER D.O.T. SHIPPING DESCRIPTION WE SHOULD BE USING. (49 CFR 172.101)
 - A. "NON- REGULATED MATERIAL" for all types of wastes that fall below the .002 uCi/gm of waste weight that have no other hazard involved. (49 CFR 173.403 – definition of Radioactive material)
 - B. "RADIOACTIVE MATERIAL, EXCEPTED PACKAGE-LIMITED QUANTITY OF MATERIAL, 7., UN 2910" for all types of radioactive material/wastes that are above .002 uCi/gm but fall below 100 % of the Limited Quantity upper limits as worked up on the "Sum of the Fraction Worksheet", that have no other hazards involved. (49 CFR 173.421)
 - C. "RADIOACTIVE MATERIAL, LSA, N.O.S., 7., UN 2912" for all types of radioactive materials/wastes that are above 100% of the Limited Quantity upper limits that have no other hazards involved. (49 CFR 173.403 – definition of Low Specific Activity (LSA) material)
 - D. "RADIOACTIVE MATERIAL, N.O.S., 7., UN 2982" for all sources and compounds (acetates/nitrates) unless they fall under "Non-Regulated Material" by definition or "Limited Quantity of Material" by definition. (See A and B above)
 - E. "RADIOACTIVE MATERIAL, LSA, N.O.S., 7., UN 2912 (CONTAINS – *name of chemical*) for flammable scintillation vials or bulk liquids that are above both "Non-Regulated Material" and " Limited Quantity of Material" limits.
 - F. "WASTE, FLAMMABLE LIQUID, N.O.S., (CONTAINS –*name of chemical*) 3., UN 1993 PG II" for deregulated flammable scintillation vials or bulk liquids or for radioactive flammable scintillation vials or bulk liquids that fall below .002 uCi/gm.

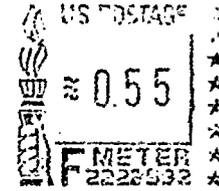
G. "WASTE, FLAMMABLE LIQUID, N.O.S.,(CONTAINS – name of chemical) 3., UN 1993 PG II (CONTAINS LIMITED QUANTITY OF RADIOACTIVE MATERIAL) for all flammable scintillation vials or bulk liquids that the radioactive materials is above .002 uCi/gm but below the upper limits of "Limited Quantity of Materials" using the "Sum of the Fractions Worksheet".

When preparing the NRC Forms 540 and 541 the materials with the greatest hazard must be entered in accordance with 49 CFR 172.201 –a.1.i,ii, or iii. That is listing the most hazardous item(s) first, or in a contrasting color or by designating them with an "X" in the hazardous materials column. (For our purposes, it would probably be easier to first determine which hazard class each package falls into and renumber the drums accordingly.) Also when listing packages, if there are no "Radioactive" listings, then the words "Low Level Radioactive Waste Manifest" should be whited out on both forms prior to making copies.

If any of the drums or packages on these forms falls into the "Limited Quantity of Radioactive Materials" classification, then "Statement of Certification" (49 CFR 173.422) must accompany the shipment.



17650 Duvan Drive
Tinley Park, Illinois 60477



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