



U.S. Department  
of Transportation

**Research and  
Special Programs  
Administration**

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

APR 2 1998

Mr. Daniel J. Duncan  
Waste Management, Inc.  
3003 Butterfield Road  
Oak Brook, IL 60521

Dear Mr. Duncan:

This is in response to your letter of April 3, 1997, asking if your company can reclassify explosives and forbidden materials that were treated to reduce the explosive characteristic without subjecting them to the requirements for testing a new explosive contained in 49 CFR 173.56. You stated your company combines these materials with agents and reduces the concentration of the hazardous material in the mixture to a range of 1-10%, which you state your company has determined is classified as either a Division 4.1 material or the material is diluted to the point where it no longer exhibits explosive characteristics.

The answer is no. In accordance with § 173.124(a)(1), desensitized mixtures of explosive materials, other than those specifically listed in the Hazardous Materials Table (§ 172.101), must be classed and approved by the Office of Hazardous Materials Exemptions and Approvals under the terms of an approval or an exemption. Whether a diluted (desensitized) explosive substance is classified in Division 4.1 depends on data obtained following examination by a qualified laboratory and procedures specified in § 173.56.

I hope this information is helpful. If we can assist you further, please contact us.

Sincerely,

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

OFFICE OF HAZARDOUS MATERIALS STANDARD  
CORRESPONDENCE TRACKING SHEET

ENTERED

DATE: 04/03/97  
COMPANY: WASTE MANAGEMENT  
/FROM: DANIEL DUNCAN  
SPECIALIST: EDMONSON

8/14/97  
emp

RECEIVED:  
ASSIGNED: 04/16/97  
DUE: 05/14/97  
SUBJECT: 173.21

SIGNED:  
COMMENTS:

SUMMARY:

COMPLEXITY: H M L

8/13

SIGNATURE:  
DRAFTS:

(Ke) Watson -

Spencer,  
Please  
review.

C. Ke  
8/15/97

Sections 172.101(d)(1) + (2) +  
173.22 appear to me to give  
him permission to do this. Attached  
is a rough draft I composed.  
Am I on target? Do you  
have another example in your  
file? I couldn't find anything  
in our files on this.

Gillen Edmonson  
X64481

**Edmonson, Eileen****From:** Edmonson, Eileen**Sent:** Monday, January 05, 1998 5:38 PM**To:** Ke, Charles; O'Steen, James; Mazzullo, Ed; Mitchell, Hattie**Cc:** Karim, Jennifer**Subject:** Re: Daniel Duncan Letter

While on vacation, I received a message on my voice mail from Daniel Duncan, Waste Management, Inc., (919) 528-3996, on December 31, 1997, asking if he and members of his company can have an opportunity to meet with Mr. O'Steen and Dr. Ke to discuss his 1997 letter on desensitized explosives. The letter is circulating in final. I have attached a copy of the latest draft and an issue paper I prepared when I was trying to determine the correct response. Please let me know if you want me to contact him with your response or if you will be contacting him directly.

Thanks,



Eileen



**Waste Management, Inc.**

A WMX Technologies Company Phone 708.572.8800  
3003 Butterfield Road  
Oak Brook, IL 60521

WMX  
Edmondson  
File 173.21, 173.54  
SC: 180, 114

April 3, 1997

Edward Mazzulo  
Office of Materials Standards  
Research and Special Programs Administration  
U.S. Department of Transportation  
400 Seventh Street, SW  
Washington, D.C. 20590

Dear Mr. Mazzulo:

I am writing on behalf of Waste Management, Inc. to confirm our understanding of the Hazardous Materials Regulations as they apply to explosives and forbidden materials. Waste Management, Inc. and its operating subsidiaries routinely transport, and offer for transportation, a variety of hazardous materials. In most cases, the hazard class, proper shipping name, and authorized packaging for the materials is readily obvious; however, the classification procedures for materials formerly exhibiting Class 1 explosive properties has been the source of some confusion in the past, and is the topic for this letter.

In the hazardous waste management industry, it has been and is a common practice to treat small amounts of Class 1 explosives and forbidden materials to remove the explosive characteristic, then offer and transport the resulting mixture to a hazardous waste incinerator for disposal as a Division 4.1 flammable solid, or in some instances, as a non-regulated solid waste. Waste Management's Technical Services Division and its competitors have been conducting these operations for many years. Our record in transporting these mixtures during this period has been exemplary, with no incidents involving these materials occurring to date.

Waste Management provides these services to a number of private and public institutions which have no disposal outlet for these materials. Examples include high school and university laboratories, hospitals, manufacturing facilities, police and fire departments, and the Drug Enforcement Administration. Compounds commonly encountered include lead azide, ammonium picrate, RDX, HMX, TNT, picric acid, and many other compounds that represent Class 1 hazards when in the pure state.

When encountering these types of compounds, Technical Services field personnel employ established practices to render these compounds both non-explosive and harmless. Through the addition of stabilizing agents, such as water and clay absorbent, the purity of the explosives or forbidden materials is reduced to a concentration ranging from 1-10%, which eliminates their explosive characteristics. The procedures employed are supported by (1) extensive studies conducted by Hercules Inc. for the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), which demonstrate that, when these materials are stabilized with water and sand, they do not react explosively to induced shock or submerged flame initiation stimuli in accordance with Bureau of Mines explosive classification protocol; and (2) our own experience in the handling, transportation, and disposal of these materials.

Waste Management has reviewed DOT's Hazardous Materials Regulations as they apply to explosives in 49 CFR Part 173 Subpart C and concluded that they do not apply to treated mixtures not exhibiting explosive characteristics. We base this conclusion on the following rationale:

DOT defines a forbidden explosive in §173.54 as an explosive that has not been approved in accordance with §173.56. Section 173.156 contains definitions and procedures for the classification and approval of new explosives. In §173.56, DOT defines a "new explosive" as an explosive produced by a person who (1) has not previously produced that explosive; or (2) has previously produced that explosive but has made a change in the formulation, design or process so as to alter any of the properties of the explosive". From the definition, it is clear that a new explosive is restricted to a material that is or remains an explosive. Since the treated mixtures no longer exhibit explosive characteristics, they are not, by definition, new explosives and are therefore not subject to DOT's new explosive regulations.

49 CFR §173.22 assigns the shipper responsibility for properly classifying, describing, and packaging a hazardous material prior to offering it for transportation. Based on our extensive experience handling these materials, we have determined, pursuant to 49 CFR §173.22, that the most appropriate and accurate classification for these treated mixtures is either Division 4.1 flammable solid or, in some instances, non-regulated when the mixtures are diluted to a point where they no longer exhibit a DOT hazard.

It is important to note that in the majority of cases the quantity of explosives and forbidden materials that require disposal is less than one ounce, and often represents the only container of this material on-site. After treatment, the resulting mixture will generally weigh less than one pound. As such, it makes no practicable sense to submit this mixture to DOT for testing and classification purposes. In addition to the costs involved, United States Environmental Protection Agency (USEPA) rules require that generators dispose of these materials within 90 days after being declared a waste because these materials often exhibit the hazardous waste characteristic of reactivity (i.e., D003). Submitting samples to DOT and obtaining individual approvals for these materials would serve no useful purpose, afford no additional protection to the environment or public health, and does not appear to be required by the regulations. It will result only in unnecessary delays which could cause violations of the USEPA's hazardous waste storage restrictions, and could pose additional risk to public health if the materials are allowed to sit idle for extended periods without processing.

Waste Management is aware of DOT Exemption E-8451 that allows the transport of up to 25 grams of explosives having an energy density less than or equal to pentaerythritol tetranitrate. Advanced Environmental Technical Services (AETS), a majority-owned subsidiary of Waste Management, is a party to DOT-E-8451, and has utilized this exemption to transport small amounts of explosives in the past; however, use of the exemption packaging is not always practical or permitted in all circumstances. On some occasions, the presence of explosive materials at a customer's site is not always known until after our personnel arrive at the site to arrange disposal for other materials. Because the packagings are costly and difficult to construct, it is not practical to equip all of our crews with the packagings as a routine practice. Further, because some of the explosives encountered are not safe to handle and dispose of until they have been treated and rendered non-explosive, the resultant mixture exceeds the 25 gram limit allowed for in the exemption. Thus, use of DOT-E-8451, as advocated by DOT, as a means to ship small amounts of explosives does not provide a safe, practical or permitted solution in all instances.

In sum, Waste Management and its competitors provide a valuable service to a wide variety of customers in the private and public sectors. Dangerous chemicals are removed from the shelves of laboratories in schools and other facilities where they pose a real threat to immediate personnel. After being rendered harmless and non-explosive through proven techniques, they are classified under 49 CFR §173.22, then safely transported and disposed of in permitted hazardous waste combustion units. Waste Management intends to continue this practice since it is our belief that it is being conducted in compliance with DOT regulations, and we would like your written concurrence to that effect. If you have any questions or would be like to meet with us to discuss this issue further, please contact me at (630) 218-1735.

Sincerely,



Daniel J. Duncan  
Waste Management, Inc.

cc: John Abrams  
Jim Bell  
Kevin Connors  
Kevin Igli  
Arlene Lyons  
Mike Richter  
Greig Siedor

ISSUE PAPER  
December 8, 1997  
Daniel Duncan Letter, Waste Management, Inc.  
RE: Waste Explosives Going for Disposal

WMI Issues:

- \* WMI says they reduce the content of the explosive or forbidden material in a waste through the addition of stabilizing agents until the material is reduced to a concentration from 1-10%. They state they can reclassify these materials in accordance with § 173.22 because this practice eliminates the explosive characteristic from these materials. They have interpreted the HMR as not requiring them to test a non-explosive in accordance with § 173.56.
- \* They do not provide any test data to prove their points. WMI states the procedure is supported by extensive studies conducted by Hercules, Inc., for the U. S. Army Toxic and Hazardous Materials Agency, but did not supply these studies. I cannot locate this agency in the 1995-96 Government Manual. The studies were supposed to have demonstrated that when these materials are mixed with water and sand they do not react explosively to induced shock or submerged flame initiation stimuli in accordance with BOE classification protocol.
- \* WMI states they have treated these materials to reduce their characteristics for years, but don't give the exact time period, and that no incidents have occurred involving these remixed materials.
- \* WMI states one of its subsidiary companies is a party to DOT-E 8451, which allows the transport of up to 25 grams of explosives having an energy density less than or equal to pentaerythritol tetranitrate, but the resulting non-explosive mixture in their waste.explosives scenario exceeds the 25 gram limit, making the exemption useless for them

WMI Complaints:

- \* WMI complains that the resulting amounts of reduced concentration material are small and would be expensive to send off for testing.
- \* WMI also complains that they do not know when they are going to encounter explosives when they go to collect waste materials, and, because the packagings are costly and difficult to construct, do not equip all their crews with these packagings as a routine practice.

Questions:

- \* The HMR in § 173.56 appears to require them to prove each mixture is non-explosive through testing. Is this correct? Would a possible solution be to test for a range of these mixtures that is all inclusive of the materials they are transporting and issue an exemption? What approach would be most cost effective and still satisfy the HMR?
- \* What risks could occur if the water evaporates from WMI's new sand/water/explosive mixture? Could packaging restrictions eliminate the possibility of evaporation?
- \* Should a discussion on Special Provision 23 be added to the letter? Revised in Docket HM-215B (5/6/97), this provision permits certain diluted explosives to be reclassified Division 4.1 if:
  - 1) "so packed that the percentage of diluent will not fall below that stated in the shipping description at any time during transport" or
  - 2) quantities of not more than 500 g per package with not less than 10 percent water by mass produce a negative result when tested in accordance with test series 6(c) of the UN Manual of Tests and Criteria.

**Edmonson, Eileen**

**From:** Watson, Spencer

**Sent:** Wednesday, October 15, 1997 4:56 PM

**To:** Edmonson, Eileen; Ke, Charles

**Cc:** Hedgepeth, Suzanne; Jones, James E.; Karim, Jennifer; Mitchell, Hattie

**Subject:** RE: Status of Daniel Duncan Letter

Eileen,

My best recollection about this missing file is: I returned your draft personally on or about that same week of August and that I explained in your office how your draft reply to Waste Management appeared to be inconsistent with the HMR and DHM policy. I specifically recall explaining to the best of my knowledge that any desensitized mixture of explosive materials other than those specifically listed in 172.101 table (e.g., UN1310, ammonium picrate, wetted with not less than 10 percent water) must always be classed and approved by the Office of Hazardous Materials Exemptions and Approvals by either an approval or an exemption. Please refer to 173.124(a)(1).

I also remember referring you to a recent interpretation letter (filed under 173.56) issued by DHM-10 in 1995 or 1996 to April Lasch of Laidlaw Environmental Services which went into some detail on the technical rationale behind the HMR on this subject. It has been our policy that no matter how dilute the 'explosive material' in whatever form, OHMS reserves the right to examine and classify the material. It is RSPA's and NOT the shipper's prerogative to classify any desensitized explosive materials other than those specifically called out in the 172.101 table by name. OHMEA has issued many, many EX-approvals for explosives at the or below the 1 percent level in solid or liquid form as either Div 1.4S, Div. 4.1 Class 3 or 'non regulated' hazardous materials, as appropriate to the diluent.

Re 'forbidden explosives', see Section 173.54(a), which states that an explosive that has not been approved (by us) in accordance with 173.56 shall not be offered for transportation or transported and is, i.e., 'Forbidden'. There is to my knowledge, no concentration range below which an explosive ceases to be forbidden until or unless approved, by law or policy, unless it is specifically identified in the 172.101 table as in a Class other than Class 1, by its proper shipping name.

Lastly I believe that you were going to do a redraft of the letter after reviewing the HMR again after I suggested you might further discuss it with Jim Jones and Sue Hedgepeth for confirmation. Perhaps they might have your letter draft?

Spence

From: Edmonson, Eileen

To: Ke, Charles; Watson, Spencer

Cc: Karim, Jennifer; Mitchell, Hattie

Subject: Status of Daniel Duncan Letter

Date: Wednesday, October 15, 1997 1:45PM

Charlie/Spencer - Mr. Duncan called me this afternoon to inquire about the status of our response to his letter. My records show I sent the draft response to your office for comment on 8/13/97. Can you tell me how it's going? Is there any information I can provide you with that will aid you in your review? I have copied my draft reply in this e-mail for your ready reference.

Sincerely,

Eileen Edmonson, x64481

COPY OF DRAFT RESPONSE:

Mr. Daniel J. Duncan