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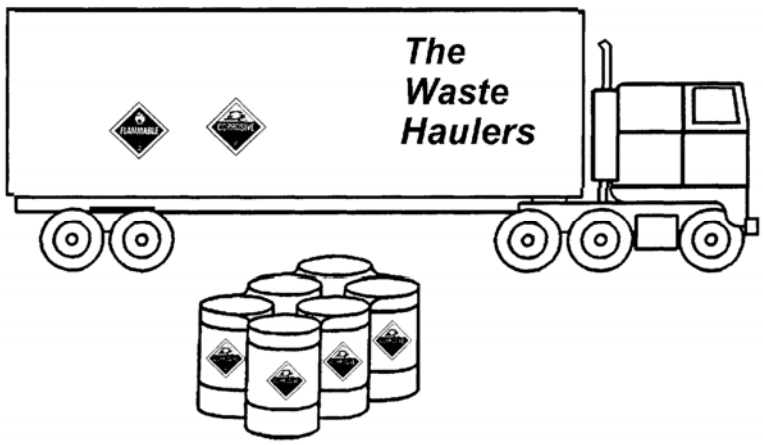
ENVIRONMENTAL QUALITY

PROCESS AND PROCEDURES FOR SHIPPING HAZARDOUS WASTES AND OTHER HAZARDOUS MATERIALS



ENGINEER PAMPHLET

AVAILABILITY

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DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, D.C. 20314-1000

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No. 200-1-2

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Environmental Quality
PROCESS AND PROCEDURES FOR SHIPPING HAZARDOUS WASTES AND OTHER HAZARDOUS MATERIALS

1. Purpose. The enclosed appendix is a guide to the procedures and responsibilities primarily associated with the manifesting of hazardous wastes in accordance with the requirements of the Resource Conservation and Recovery Act and the Department of Transportation regulations. In addition, the pamphlet sets forth procedures for the transportation of other hazardous materials, Formerly Utilized Sites Remedial Action Program (FUSRAP) wastes, and other wastes commonly transported by the Corps of Engineers during site remediation and response actions.

2. Applicability. This pamphlet applies to all HQUSACE elements, all USACE commands having the responsibility for executing and signing hazardous waste manifests and all USACE elements responsible for overseeing contractors who prepare hazardous materials for shipment and then sign and execute manifests and other shipping papers.

3. Distribution Statement. Approved for public release; distribution is unlimited.

4. References.

a. 49 U.S.C. 5101, et seq., as amended, Hazardous Materials Transportation Act.

b. 42 U.S.C. 6901, et seq., as amended, Resource Conservation and Recovery Act (RCRA).

c. 42 U.S.C. 9601, et seq., as amended, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

d. 28 U.S.C. 2679, et seq., as amended, Federal Employee's Liability Reform and Tort Compensation Act.

e. PL 102-386, Federal Facility Compliance Act, amendment to RCRA.

f. 40 CFR 61, 260-280, 761, EPA asbestos, hazardous waste, and PCB regulations.

g. 40 CFR 300-302, EPA National Contingency Plan and Reportable Quantity regulations.

This EP supersedes EP 200-1-2, dated 28 April 2000.

h. 49 CFR 171-180, DOT hazardous materials transportation regulations.

i. EP 415-1-266, Resident Engineers Management Guide for HTRW Sites.

j. EP 500-1-1, Emergency Employment of Army and Other Resources.

k. DTR 4500.9-R-Part II Cargo Movement, Defense Traffic Regulation, Chapter 204, Hazardous Material

l. EM 385-1-80, Safety - Radiation Protection Manual

5. Discussion. The transportation of hazardous materials in the United States is strictly regulated by the U.S. Department of Transportation (DOT). Hazardous wastes are one subset of hazardous materials. The transportation of hazardous waste is strictly regulated by the U.S. Environmental Protection Agency (EPA) as well as the U.S. Department of Transportation (DOT). EPA requires the use of a specific shipping document called the "Uniform Hazardous Waste Manifest" (EPA Form 8700-22) but EPA defers to DOT for regulations concerning the actual preparation of the manifest and physical shipment of the wastes. The DOT has approximately 1700 pages of requirements discussing the proper shipping requirements for hazardous materials, including wastes and it requires that each shipment be properly packaged, labeled, and marked and that all transport vehicles be properly placarded. Although Polychlorinated Biphenyls (PCBs) are not a Federal hazardous waste, EPA requires that the Uniform Hazardous Waste Manifest be used for the shipment of PCBs. Additionally, for asbestos, EPA requires the use of a form called an Asbestos Waste Shipping Record or an equivalent shipping document. For PCBs and asbestos, the DOT requirements must be reviewed and met if the material also meets the definition of a regulated DOT hazardous material.

6. Updates**.** This document was originally published on 31 March 1994 and later updated in April 2000. This new update includes EPA and DOT regulatory changes. In addition, the appendix reflects the most current USACE policy and guidance pertaining to the shipping of hazardous materials, including hazardous wastes, PCBs, asbestos, wastes containing munitions and explosives of concern (MEC) and munitions constituents (MC), and low level radioactively contaminated soils from FUSRAP sites. Some of the more important changes are as follows:

a. Updates entire manual based on EPA and DOT regulatory changes;

b. Provides information on the new Uniform Hazardous Waste Manifest and its proper use;

c. Updates cross references to the requirements found in other USACE guidance, such as EP-415-1-266, Resident Engineers Management Guide for HTRW Sites, EM 385-1-80, Radiation Protection Manual, and EM 1110-35-1, Engineering and Design: Management Guidelines for Working with Radioactive and Mixed Waste;

d. Incorporates applicable requirements of *Defense Traffic Regulations*, DTR 4500.9-R-Part II Cargo Movement, Chapter 204, *Hazardous Material*;

e. Identifies post-911 DOT security requirements found in DOT regulations as 49 CFR 171, subpart I and *Defense Traffic Regulations*, DTR 4500.9-R-Part II, Chapter 205, paragraph X, Security Awareness Training for Shipments of HAZMAT; and

f. Includes revisions to all EPA and DOT checklists.

FOR THE COMMANDER:

STEPHEN L. HILL
Colonel, Corps of Engineers
Chief of Staff

Appendix A
Process and Procedures
for Shipping Hazardous Wastes
and Other Hazardous Materials

APPENDIX A

Process and Procedures for Shipping Hazardous Wastes and Other Hazardous Materials

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List of acronyms

ARIMS	Army Recordkeeping Information Management System
BoL	Bill of Lading
BRAC	Base Realignment and Closure
BSD	Basic Shipping Description
CD	Certificate of Disposal
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
DDESB	Department of Defense Explosives Safety Board
DERP	Defense Environmental Restoration Program
DMM	Discarded Military Munitions
DOD	Department of Defense
DOE	Department of Energy
DOT	Department of Transportation
DOT-E	DOT Exemption
DOT-SP	DOT Special Permit
DTR	Defense Traffic Regulation
EDI	Electronic Data Interchange
EM CX	USACE Environmental and Munitions Center of Expertise (formerly the HTRW CX)
EOD	Explosive Ordnance Disposal
EP	Engineering Pamphlet
EPA	U.S. Environmental Protection Agency
ESF	Emergency Support Function
ER	Engineering Regulation
ERG	Emergency Response Guidebook
FEMA	Federal Emergency Management Agency
FHC	Final Hazard Classification
FRA	Federal Railroad Administration
FSA	Farm Services Administration
FSP	Field Sampling Plan
ft^3	cubic foot
FUDS	Formerly Used Defense Sites
FUSRAP	Formerly Utilized Sites Remedial Action Program
gal	gallon
HAZMAT	Hazardous Materials
HAZWOPER	Hazardous Waste Operations and Emergency Response

HC	Hazard Class
HD	Hazard Division
HM	Hazardous Material
HMR	Hazardous Materials Regulations
HMT	Hazardous Materials Table
HS	Hazardous Substance
HSWA	Hazardous and Solid Waste Amendments
HTRW	Hazardous, Toxic, and Radioactive Waste
HTRW CX	USACE Hazardous, Toxic, and Radioactive Waste Center of Expertise (See EM CX)
HW	Hazardous Waste
IAG	Interagency Agreement
lb	pound
IBC	Intermediate Bulk Containers
ICAO	International Civil Aviation Organization
ID	Identification Number
IHC	Interim Hazard Classification
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
IRP	Installation Restoration Program
kg	kilogram
kPa	kiloPascal
L	liter
LDR	Land Disposal Restrictions
LLRW	Low Level Radioactive Waste
LSA	Low Specific Activity
LTD QTY	Limited Quantity
m^3	cubic meter
MC	Munitions Constituents
MEC	Munitions and Explosives of Concern
MM	Military Munitions
MM CX	Military Munitions Response Program Center of Expertise (now part of EM CX)
MOA	Memorandum of Agreement
MPPEH	Material Potentially Presenting and Explosive Hazard
MTN	Manifest Tracking Number
NA	North America
NCP	National Contingency Plan
n.o.i.	Not otherwise indicated
n.o.i.b.n.	Not otherwise indicated by name

n.o.s.	Not otherwise specified
NRC	National Response Center (spill reporting)
NRC	Nuclear Regulatory Commission (when talking about radioactive materials)
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NUREG	U.S. Nuclear Regulatory Commission Regulation
ORM-D	Other Regulated Material-Consumer Commodity
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyls
PG	Packing Group
PHMSA	U.S. DOT Pipeline and Hazardous Materials Safety Administration
PIH	Poison Inhalation Hazard
POC	Point of Contact
POPS	Performance-Oriented Packaging Standards
ppm	parts per million
PROSPECT	Proponent Sponsored Engineer Corps Training
PRP	Potentially Responsible Party
PSN	Proper Shipping Name
QA	Quality Assurance
QAAP	Quality Assurance Project Plan
QC	Quality Control
qt	quart
UFGS	Unified Guide Specification
RAMREG	Department of Transportation Radioactive Material Regulation (Guidance)
RCRA	Resource Conservation and Recovery Act
RQ	Reportable Quantity
SAP	Sample and Analysis Plan
SDDC	Surface Deployment and Distribution Command
TB	Technical Bulletin
TSCA	Toxic Substances Control Act
TSDF	Treatment, Storage, and Disposal Facility
UN	United Nations
USACE	United States Army Corps of Engineers
USATCES	United States Army Technical Center for Explosives Safety
U.S.C.	United States Code
UST	Underground Storage Tank
UXO	Unexploded Ordnance
WSR	Waste Shipment Record

Let's get started

Whether you are remediating a Superfund site or a former U.S. Department of Energy site, cleaning up a military installation, or managing the environmental compliance at a military base or Civil Works project, you will eventually have to ship hazardous materials and hazardous wastes offsite for disposal.

The management, storage, transportation, and disposal of hazardous materials and wastes are primarily regulated by two federal agencies: the U.S. Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) and the U.S. Environmental Protection Agency (EPA). Many EPA regulations are administered by the states; however, DOT regulations are administered by the federal DOT PHMSA.

The transportation of hazardous materials is governed by the federal *Hazardous Materials Transportation Act*, 49 U.S.C. 5101 et seq., and regulated under Title 49 of the *Code of Federal Regulations* (CFR) parts 171 through 180. Title 49 also regulates the transportation of hazardous wastes because hazardous wastes are by definition a DOT hazardous material.

- Part 171 gives general information and definitions.
- Part 172 gives the requirements associated with shipping papers, container marking, labeling, and placarding, as well as emergency response and training requirements.
- Part 173 gives the general requirements for packaging, as well as the definitions of the hazard classes and packing groups.
- Part 174 gives the specific requirements for transporting by rail.
- Part 175 gives the requirements for transporting by air.
- Part 176 gives the requirements for transporting by vessel.
- Part 177 gives the requirements for transportation by highway.
- Part 178 gives the specifications for packagings.
- Part 179 gives the specifications for tank cars.
- Part 180 gives the requirements for continuing qualification and maintenance of packagings.

The management of hazardous wastes is governed by the *Resource Conservation and Recovery Act*, (RCRA) 42 U.S.C. 6901 et seq., and regulated under Title 40 of the CFR in parts 260 through 280. In preparing manifests for hazardous wastes, you should note several important parts of the CFR.

- Part 260 gives general information, definitions, and a list of exclusions.
- Part 261 tells you how to identify and characterize hazardous wastes.
- Part 262 gives the requirements for the generator of the hazardous waste.
- Part 263 gives the requirements that are applicable to transporters of hazardous wastes.
- Parts 264 and 265 give the management requirements for treatment, storage, and disposal facilities (TSDFs).

- Part 266 gives the requirements for the management of used oil, batteries, military munitions, and other recyclable materials.
- Part 268 gives the land disposal restrictions (LDRs).
- Part 280 gives the requirements for underground storage tanks (USTs).

The regulations are long and complicated. However, to properly manage and transport hazardous materials and wastes, you must understand them.

This guide explains the regulations and U.S. Army Corps of Engineer policies for shipping hazardous materials, including hazardous wastes. In addition, the guide addresses special requirements for shipping ordnance, explosive and munition wastes, asbestos, polychlorinated biphenyls, and radioactive materials. This guide will help you complete the required shipping papers and properly mark, label, and package the waste, as well as correctly placard transport vehicles.

However, this is only a guidance document and may not reflect the most current legal and regulatory requirements because EPA and DOT continue to promulgate new regulations. Regulatory revisions that may affect the Corps will be disseminated through *Construction Bulletins* or by other means, such as Corps *Environmental Fact Sheets*. The information contained here will help you understand the procedures required for the proper shipment of hazardous materials and wastes; however, you are responsible for checking this information in the most recent regulatory publications, and seeking advice from specialists in transportation and manifesting of hazardous materials as well as agency counsel as needed.

Why should I keep reading?

If you have picked this guide as reading material, it is probably because you have the responsibility to oversee or actually prepare a shipment of hazardous materials (including hazardous wastes and substances) for transportation.

The requirements found herein have been extracted from various regulatory requirements. Both DOT and EPA require that the shipper or generator follow specific regulations when transporting hazardous materials. In general, 49 CFR 171 states that "[n]o person may offer or accept a hazardous material for transportation in commerce unless that material is properly classed, described, packaged, marked, labeled, and in good condition for shipment." Furthermore, 40 CFR 262 states that a generator who transports, or offers for transportation, hazardous waste for offsite treatment, storage, or disposal must prepare a manifest.

Because various statutes and regulations require you to be knowledgeable, it is imperative that you read on to begin to understand what is involved with shipping hazardous materials. There are several training courses available and a list is provided in Table A-9.

What level of DOT training do I need?

DOD regulation DTR4500.9-R-II, Chapter 204 and 49 CFR 172.704, requires that HAZMAT employees be trained in five areas:

- General awareness/familiarization.
- Function-specific job-related HAZMAT requirements.
- Safety.
- Security awareness.
- In-depth security (when applicable).

The general awareness/familiarization training teaches the HAZMAT employee about the DOT regulations and how to identify hazardous materials, consistent with the DOT hazard communication standards. Employees are also required to be trained specifically for the HAZMAT job they perform, which might be signing a shipping document. Employees must also receive safety training in the areas of providing and understanding emergency response information, measures to protect themselves from the hazards of materials being shipped, and the methods and procedures for avoiding accidents. OSHA or EPA training may fulfill this requirement. All HAZMAT employees must have security awareness training that describes the general security risks of transporting hazardous materials and the methods designed to enhance transportation security. Lastly, each HAZMAT employee of an employer required to have a security plan must be trained on the specifics of the plan. Security Plan requirements will be discussed at a later point in this document.

Because the majority of hazardous materials shipped by the Corps are hazardous wastes, the Corps has developed initial and refresher training classes (PROSPECT course numbers 223 and 429) that provide general awareness/familiarization, function-specific training, and general security awareness. These courses are also approved Surface Deployment and Distribution Command (SDDC) training courses as per DTR 4500.9-R-II, chapter 204.

How do I get DOT and DOD certified?

The first step in obtaining a DOT certification is to attend a training class that provides general awareness/familiarization training, function-specific training, and security awareness. In addition, an employee will have to obtain the required safety training through the HAZWOPER program or through the employee's safety office.

Although an employee will receive a certificate upon successful completion of the DOT-related training course, this is not the certification required by DOT or DOD. DOT and DOD regulations require that the employer certify the employees. Thus, after the training is completed, the training certificates and a brief description of an individual's experience should be submitted to the Commander or his or her delegated representative. Once the Commander or the delegated representative has reviewed the information, then he or she can give a letter to the employee certifying that the employee has been trained and is certified in accordance with 49 CFR 172, subpart H and DTR 4500.9-R-II, Chapter 204. DOD regulation refers to this letter as the appointment letter. Only Corps personnel formally designated, authorized, and appointed by their District Commander or designated representative can sign HW manifests, DOT shipping papers, and related documents. The authorization letter should also indicate that the individual has been trained and is within his or her scope of employment when signing manifests and

related documents. The nomination should further provide information that the person has satisfactory education and work experience as a Corps employee.

New appointment letters must be reissued by the Commander or his/her delegated representative every 24 months after the employee has received recertification training.

In addition to the certification requirement, there are training recordkeeping requirements. A record of current training, including the preceding 3 years, has to be created and kept for as long as the employee is employed and 90 days after employment ends. The record must include the employee's name; most recent training completion date; a description, copy, or location of the training materials; the name and address of the person providing the training; and a copy of the certification.

What is hazardous?

There are several federal statutes and regulations that use the word "hazardous" to refer to a regulated substance or activity. Each term means something very specific to a particular regulatory program. The specific definitions are included in the statutes and regulations that govern these programs.

Hazardous materials are regulated under the *Hazardous Materials Transportation Act* by the DOT under Title 49 of the CFR. There are approximately 50,000 hazardous materials regulated by DOT in these regulations.

Hazardous chemicals are regulated under the *Occupational Safety and Health Act* by the Occupational Safety and Health Administration (OSHA). There are approximately 600,000 hazardous chemicals identified by OSHA. OSHA regulates hazardous chemicals in the workplace through the worker Right-To-Know law, emergency response requirements, hazardous waste operation requirements, etc. This guide will not address specific OSHA hazardous chemicals.

Hazardous wastes are regulated by EPA, under Title 40 of the CFR pursuant to their RCRA authority. Guidance on how to identify hazardous wastes is provided later in this Appendix.

Section 101(14) of the *Comprehensive Environmental Response Compensation and Liability Act* (CERCLA), 42 U.S.C. 9601 et seq., as amended, defines hazardous substances chiefly by reference to other environmental statutes, such as the Solid Waste Disposal Act or RCRA, Clean Water Act (CWA), Clean Air Act (CAA), and the Toxic Substances Control Act (TSCA). The term does not include petroleum, crude oil, or any fraction thereof that is not otherwise specifically listed or designated as a hazardous substance, or natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel.

EPA provides the list of hazardous substances in 40 CFR 302. The DOT regulations include the list of hazardous substances as part of the appendix to 49 CFR 172.101.

Interaction of the above terms is very important. Hazardous materials are commercially useful chemicals that are being transported, typically from the manufacturer to the consumer. Hazardous wastes are materials (solid, liquid, semi-solid, or gas) that have been used for their intended purpose and are being discarded. By DOT definition, all hazardous wastes (HW) are included as a subset of hazardous materials, as are all reportable quantities of hazardous substances (HS). But all hazardous wastes are not DOT hazardous substances, and all hazardous materials (HM) are not hazardous wastes. Figure A-1 depicts this basic relationship.

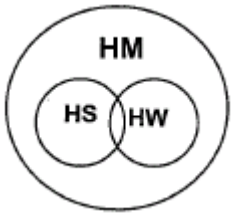


Figure A-1. Venn diagram showing how the different "hazardous" terms are related.

In the remainder of this guide, we will use these terms for their specific meaning. In practice, in the field you must understand the meaning of these terms and use them correctly.

What is a *Uniform Hazardous Waste Manifest*?

To prevent hazardous waste mismanagement, EPA designed the RCRA regulations to ensure proper management of hazardous waste from the moment it is generated until its ultimate disposal. This step-by-step management approach enables EPA and states to monitor and control hazardous waste at every point in the waste cycle.

This approach involves three key elements:

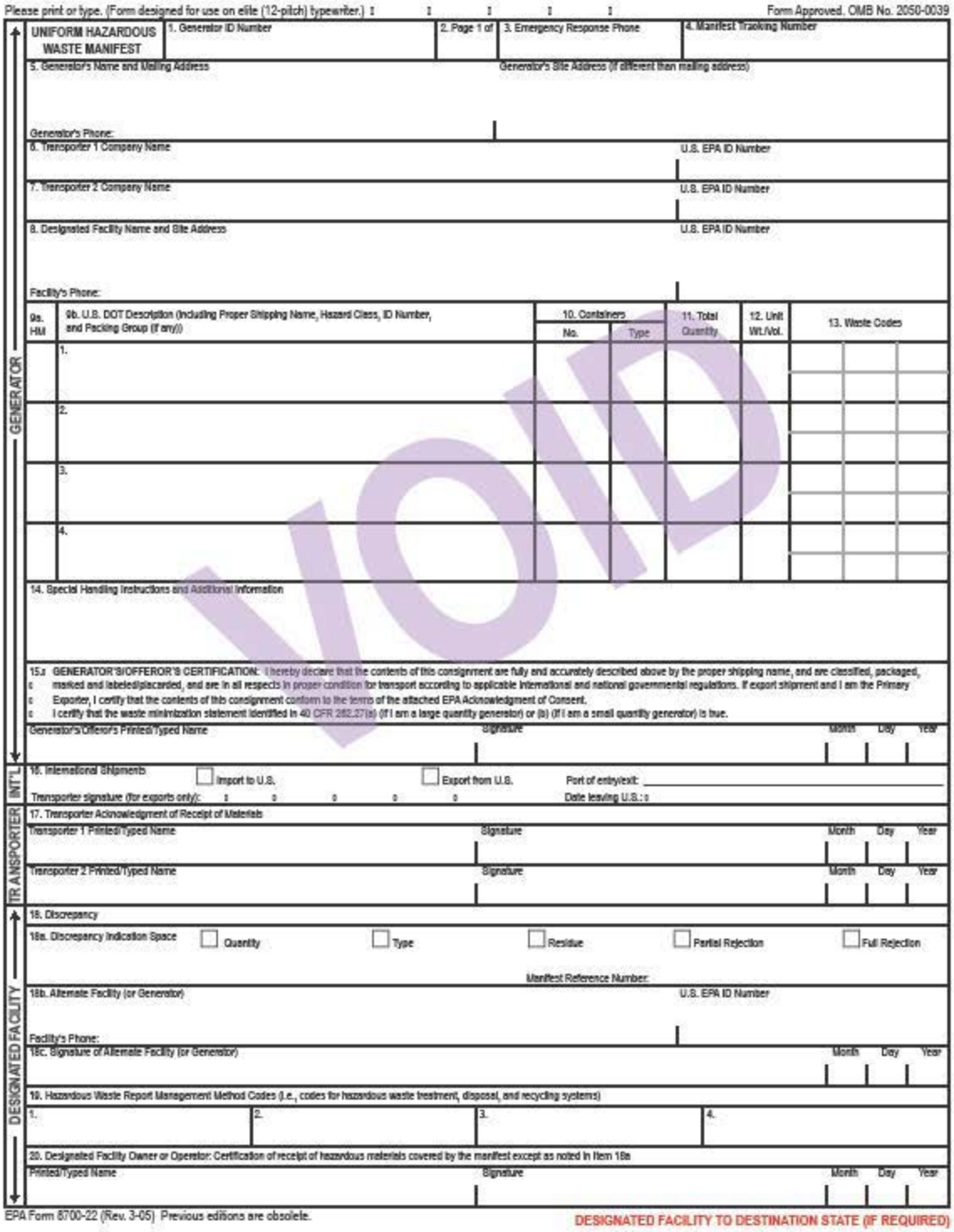
- A tracking system requiring uniform manifest documents to accompany any transported hazardous waste from the point of generation to the point of final disposal.
- An identification and permitting system that enables EPA and the states to ensure safe operation of all facilities that treat, store, and dispose of hazardous waste.
- A system of restrictions and controls on the placement of hazardous waste on or into the land.

Under RCRA regulations, generators of waste must determine if their waste is hazardous and must oversee its ultimate fate. If the generator chooses to dispose of the hazardous waste offsite, he or she must package, mark and label the waste properly for transportation. To track the transported waste, EPA requires generators to prepare a *Uniform Hazardous Waste Manifest* (EPA Form 8700-22 (Rev. 3-05)). This form contains a description of the hazardous waste, identifies the type and quantity of the waste being offered for transportation, and identifies the generator, the transporter, and the facility to which the waste is being shipped. Generators must also certify on the manifest that they are minimizing the amount and toxicity of their waste and that the method of treatment, storage, or disposal they have chosen will minimize the risk to human health and the environment and that they are offering the waste in accordance with the

applicable DOT requirements. A copy of a *Uniform Hazardous Waste Manifest* and the corresponding instructions are given in Figure A-2.

A manifest must accompany every waste shipment. The resulting paper trail documents the waste's progress through treatment, storage, and disposal. A missing form alerts the generator to investigate, which may mean calling the state agency or EPA. EPA provides instructions on the distribution of each copy of the hazardous waste manifest in 40 CFR 262.21(f)(6). The manifest and continuation sheet must be printed as six-copy forms. It is important to note that the distribution of these six pages may vary depending on the whether the State regulator of the designated facility (page 1) and/or the generator's regulator (page 2) require a copy of the manifest. Page 3 of the hazardous waste manifest is the comeback copy from the designated facility to the generator. Page 4 of the hazardous waste manifest is the designated facility's copy to retain. Page 5 is the Transporter's copy of the hazardous waste manifest and Page 6 (bottom copy) of the hazardous waste manifest is the generator's initial copy that is retained when the shipment is initiated.

The manifest, when completed properly, also fulfills all DOT paperwork requirements. The manifest functions as a DOT shipping paper or Bill of Lading (BoL).



Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number | 2. Page 1 of | 3. Emergency Response Phone | 4. Manifest Tracking Number

GENERATOR

5. Generator's Name and Mailing Address | Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name | U.S. EPA ID Number

7. Transporter 2 Company Name | U.S. EPA ID Number

8. Designated Facility Name and Site Address | U.S. EPA ID Number

Facility's Phone:

9a. HM	9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1.					
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name | Signature | Month | Day | Year

INT'L

16. International Shipments: Import to U.S. | Export from U.S. | Port of entry/exit:

Transporter signature (for exports only): | Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name | Signature | Month | Day | Year

Transporter 2 Printed/Typed Name | Signature | Month | Day | Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space: Quantity | Type | Residue | Partial Rejection | Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) | U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) | Month | Day | Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1. | 2. | 3. | 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name | Signature | Month | Day | Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

VOID

Figure A-2. EPA *Uniform Hazardous Waste Manifest* form and instructions.

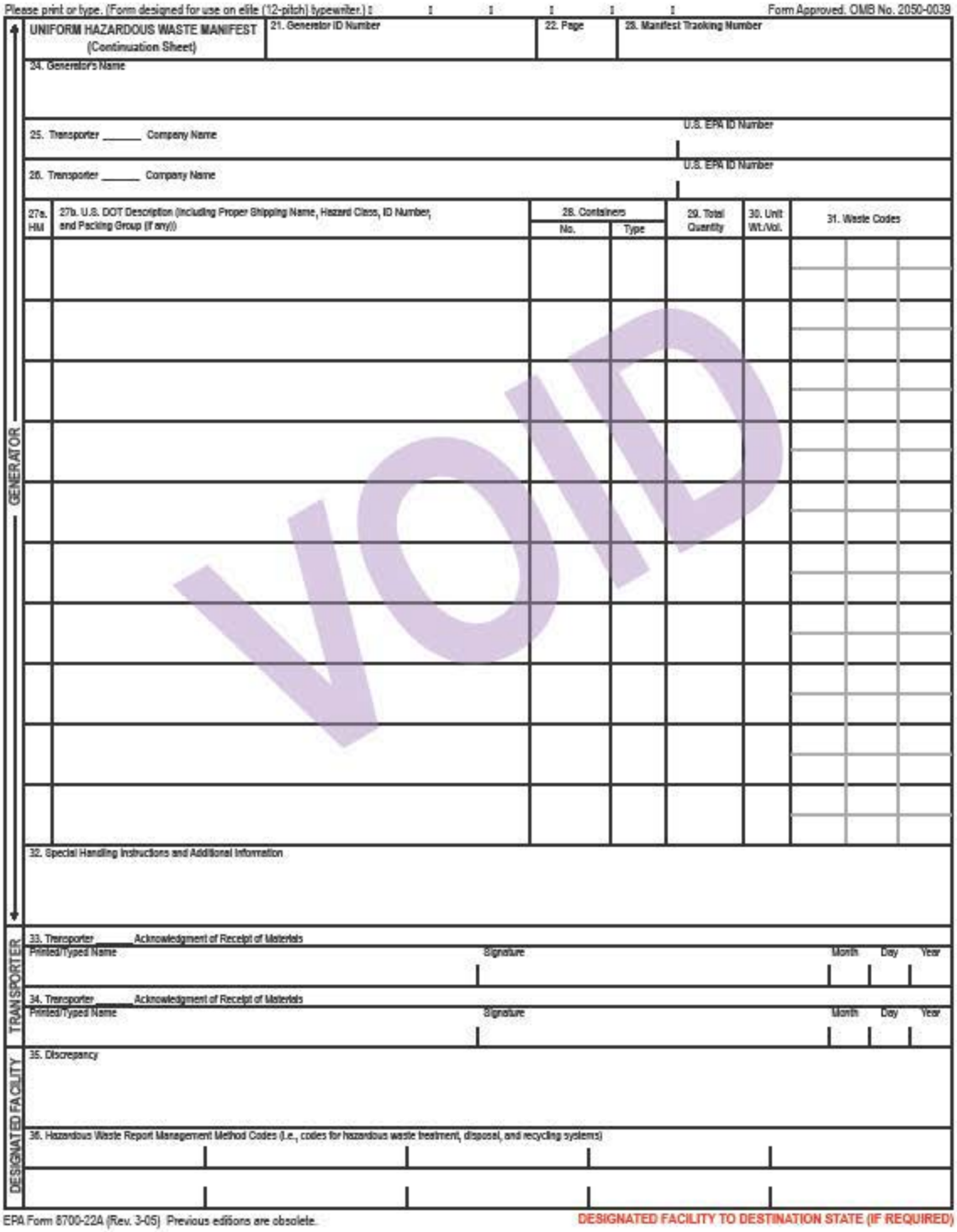


Figure A-2 (cont'd). EPA *Uniform Hazardous Waste Manifest* form and instructions.

Instructions for Completing the Hazardous Waste Manifest

What are the instructions for completing the manifest form (EPA Form 8700-22)?

Read all instructions before completing the form.

1. The form has been designed for use on a 12-pitch (elite) typewriter which is also compatible with standard computer printers; a firm point pen may also be used—press down hard.

2. Federal regulations require generators and transporters of hazardous waste and owners or operators of hazardous waste treatment, storage, and disposal facilities to complete the manifest form (EPA Form 8700–22) and, if necessary, the continuation sheet (EPA Form 8700–22A) for both inter- and intrastate transportation of hazardous waste.

I. Instructions for Generators

Item 1. Generator's U.S. EPA Identification Number

Enter the generator's U.S. EPA twelve-digit identification number, or the state generator identification number if the generator site does not have an EPA identification number.

Item 2. Page 1 of ___

Enter the total number of pages used to complete the manifest (*i.e.*, the first page (EPA Form 8700-22) plus the number of continuation sheets (EPA Form 8700-22A), if any).

Item 3. Emergency Response Phone Number

Enter a phone number for which emergency response information can be obtained in the event of an incident during transportation. The emergency response phone number must:

1. Be the number of the generator or the number of an agency or organization who is capable of and accepts responsibility for providing detailed information about the shipment;

2. Reach a phone that is monitored 24 hours a day at all times the waste is in transportation (including transportation related storage); and

3. Reach someone who is either knowledgeable of the hazardous waste being shipped and has comprehensive emergency response and spill cleanup/incident mitigation information for the material being shipped or has immediate access to a person who has that knowledge and information about the shipment.

Figure A-2 (cont'd). EPA *Uniform Hazardous Waste Manifest* form and instructions.

Note: Emergency Response phone number information should only be entered in Item 3 when there is one phone number that applies to all the waste materials described in Item 9b. If a situation (*e.g.*, consolidated shipments) arises where more than one Emergency Response phone number applies to the various wastes listed on the manifest, the phone numbers associated with each specific material should be entered after its description in Item 9b.

Item 4. Manifest Tracking Number

This unique tracking number must be pre-printed on the manifest by the forms printer.

Item 5. Generator's Mailing Address, Phone Number and Site Address

Enter the name of the generator, the mailing address to which the completed manifest signed by the designated facility should be mailed, and the generator's telephone number. Note, the telephone number (including area code) should be the normal business number for the generator, or the number where the generator or his authorized agent may be reached to provide instructions in the event the designated and/or alternate (if any) facility rejects some or all of the shipment. Also enter the physical site address from which the shipment originates only if this address is different than the mailing address.

Item 6. Transporter 1 Company Name, and U.S. EPA ID Number

Enter the company name and U.S. EPA ID number of the first transporter who will transport the waste. Vehicle or driver information may not be entered here.

Item 7. Transporter 2 Company Name and U.S. EPA ID Number

If applicable, enter the company name and U.S. EPA ID number of the second transporter who will transport the waste. Vehicle or driver information may not be entered here.

If more than two transporters are needed, use a continuation sheet(s) (EPA Form 8700-22A).

Item 8. Designated Facility Name, Site Address, and U.S. EPA ID Number

Enter the company name and site address of the facility designated to receive the waste listed on the manifest. Also enter the facility's phone number and the U.S. EPA twelve-digit identification number of the facility.

Item 9. U.S. DOT Description (Including Proper Shipping Name, Hazard Class or Division, Identification Number, and Packing Group)

Item 9a. If the wastes identified in Item 9b consist of both hazardous and nonhazardous materials, then identify the hazardous materials by entering an "X" in this Item next to the corresponding hazardous material identified in Item 9b.

Item 9b. Enter the U.S. DOT Proper Shipping Name, Hazard Class or Division,

Figure A-2 (cont'd). EPA *Uniform Hazardous Waste Manifest* form and instructions.

Identification Number (UN/NA) and Packing Group for each waste as identified in 49 CFR 172. Include technical name(s) and reportable quantity references, if applicable.

Note: If additional space is needed for waste descriptions, enter these additional descriptions in Item 27 on the continuation sheet (EPA Form 8700-22A). Also, if more than one Emergency Response phone number applies to the various wastes described in either Item 9b or Item 27, enter applicable Emergency Response phone numbers immediately following the shipping descriptions for those Items.

Item 10. Containers (Number and Type)

Enter the number of containers for each waste and the appropriate abbreviation from Table I (below) for the type of container.

Table I - Types of Containers

BA = Burlap, cloth, paper, or plastic bags.	**DT = Dump truck.**
CF = Fiber or plastic boxes, cartons, cases.	DW = Wooden drums, barrels, kegs.
CM = Metal boxes, cartons, cases (including roll-offs).	HG = Hopper or gondola cars.
CW = Wooden boxes, cartons, cases.	TC = Tank cars.
CY = Cylinders.	TP = Portable tanks
DF = Fiberboard or plastic drums, barrels, kegs.	TT = Cargo tanks (tank trucks).
DM = Metal drums, barrels, kegs.	

Item 11. Total Quantity

Enter, in designated boxes, the total quantity of waste. Round partial units to the nearest whole unit, and do not enter decimals or fractions. To the extent practical, report quantities using appropriate units of measure that will allow you to report quantities with precision. Waste quantities entered should be based on actual measurements or reasonably accurate estimates of actual quantities shipped. Container capacities are not acceptable as estimates.

Figure A-2 (cont'd). EPA *Uniform Hazardous Waste Manifest* form and instructions.

Item 12. Units of Measure (Weight/Volume)

Enter, in designated boxes, the appropriate abbreviation from Table II (below) for the unit of measure.

Table II - Units of Measure

G = Gallons (liquids only)	N = Cubic Meters
K = Kilograms	P = Pounds
L = Liters (liquids only)	T = Tons (2000 Pounds)
M = Metric Tons (1000 Kilograms)	Y = Cubic Yards

Note: Tons, Metric Tons, Cubic Meters, and Cubic Yards should only be reported in connection with very large bulk shipments, such as rail cars, tank trucks, or barges.

Item 13. Waste Codes

Enter up to six federal and state waste codes to describe each waste stream identified in Item 9b. State waste codes that are not redundant with federal codes must be entered here, in addition to the federal waste codes which are most representative of the properties of the waste.

Item 14. Special Handling Instructions and Additional Information

1. Generators may enter any special handling or shipment-specific information necessary for the proper management or tracking of the materials under the generator's or other handler's business processes, such as waste profile numbers, container codes, bar codes, or response guide numbers. Generators also may use this space to enter additional descriptive information about their shipped materials, such as chemical names, constituent percentages, physical state, or specific gravity of wastes identified with volume units in Item 12.

2. This space may be used to record limited types of federally required information for which there is no specific space provided on the manifest, including any alternate facility designations; the manifest tracking number of the original manifest for rejected wastes and residues that are re-shipped under a second manifest; and the specification of PCB waste descriptions and PCB out-of-service dates required under 40 CFR 761.207. Generators, however, cannot be required to enter information in this space to meet state regulatory requirements.

Figure A-2 (cont'd). EPA *Uniform Hazardous Waste Manifest* form and instructions.

Item 15. Generator's/Offeror's Certifications

1. The generator must read, sign, and date the waste minimization certification statement. In signing the waste minimization certification statement, those generators who have not been exempted by statute or regulation from the duty to make a waste minimization certification under section 3002(b) of RCRA are also certifying that they have complied with the waste minimization requirements. The Generator's Certification also contains the required attestation that the shipment has been properly prepared and is in proper condition for transportation (the shipper's certification). The content of the shipper's certification statement is as follows: "I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked, and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent." When a party other than the generator prepares the shipment for transportation, this party may also sign the shipper's certification statement as the offeror of the shipment.

2. Generator or Offeror personnel may preprint the words, ''On behalf of'' in the signature block or may hand write this statement in the signature block prior to signing the generator/offeror certification, to indicate that the individual signs as the employee or agent of the named principal.

Note: All of the above information except the handwritten signature required in Item 15 may be pre-printed.

II. Instructions for International Shipment Block

Item 16. International Shipments

For export shipments, the primary exporter must check the export box, and enter the point of exit (city and state) from the United States. For import shipments, the importer must check the import box and enter the point of entry (city and state) into the United States. For exports, the transporter must sign and date the manifest to indicate the day the shipment left the United States. Transporters of hazardous waste shipments must deliver a copy of the manifest to the U.S. Customs when exporting the waste across U.S. borders.

Figure A-2 (cont'd). EPA *Uniform Hazardous Waste Manifest* form and instructions.

III. Instructions for Transporters

Item 17. Transporters' Acknowledgments of Receipt

Enter the name of the person accepting the waste on behalf of the first transporter. That person must acknowledge acceptance of the waste described on the manifest by signing and entering the date of receipt. Only one signature per transportation company is required. Signatures are not required to track the movement of wastes in and out of transfer facilities, unless there is a change of custody between transporters.

If applicable, enter the name of the person accepting the waste on behalf of the second transporter. That person must acknowledge acceptance of the waste described on the manifest by signing and entering the date of receipt.

Note: Transporters carrying imports, who are acting as importers, may have responsibilities to enter information in the International Shipments Block. Transporters carrying exports may also have responsibilities to enter information in the International Shipments Block. See above instructions for Item 16.

IV. Instructions for Owners and Operators of Treatment, Storage, and Disposal Facilities

Item 18. Discrepancy

Item 18a. Discrepancy Indication Space

1. The authorized representative of the designated (or alternate) facility's owner or operator must note in this space any discrepancies between the waste described on the manifest and the waste actually received at the facility. Manifest discrepancies are: significant differences (as defined by §§ 264.72(b) and 265.72(b)) between the quantity or type of hazardous waste designated on the manifest or shipping paper, and the quantity and type of hazardous waste a facility actually receives, rejected wastes, which may be a full or partial shipment of hazardous waste that the TSDF cannot accept, or container residues, which are residues that exceed the quantity limits for "empty" containers set forth in 40 CFR 261.7(b).

2. For rejected loads and residues (40 CFR 264.72(d), (e), and (f), or 40 CFR 265.72(d), (e), or (f)), check the appropriate box if the shipment is a rejected load (*i.e.*, rejected by the designated and/or alternate facility and is sent to an alternate facility or returned to the generator) or a regulated residue that cannot be removed from a container. Enter the reason for the rejection or the inability to remove the residue and a description of the waste. Also, reference the manifest tracking number for any additional manifests being used to track the rejected waste or residue shipment on the original manifest. Indicate the original manifest tracking number in Item 14, the Special Handling Block and Additional Information Block of the additional manifests.

Figure A-2 (cont'd). EPA *Uniform Hazardous Waste Manifest* form and instructions.

3. Owners or operators of facilities located in unauthorized states (*i.e.*, states in which the U.S. EPA administers the hazardous waste management program) who cannot resolve significant differences in quantity or type within 15 days of receiving the waste must submit to their Regional Administrator a letter with a copy of the manifest at issue describing the discrepancy and attempts to reconcile it (40 CFR 264.72(c) and 265.72(c)).

4. Owners or operators of facilities located in authorized states (*i.e.*, those states that have received authorization from the U.S. EPA to administer the hazardous waste management program) should contact their state agency for information on where to report discrepancies involving "significant differences" to state officials.

Item 18b. Alternate Facility (or Generator) for Receipt of Full Load Rejections

Enter the name, address, phone number, and EPA Identification Number of the Alternate Facility which the rejecting TSDF has designated, after consulting with the generator, to receive a fully rejected waste shipment. In the event that a fully rejected shipment is being returned to the generator, the rejecting TSDF may enter the generator's site information in this space. This field is not to be used to forward partially rejected loads or residue waste shipments.

Item 18c. Alternate Facility (or Generator) Signature

The authorized representative of the alternate facility (or the generator in the event of a returned shipment) must sign and date this field of the form to acknowledge receipt of the fully rejected wastes or residues identified by the initial TSDF.

Item 19. Hazardous Waste Report Management Method Codes

Enter the most appropriate Hazardous Waste Report Management Method code for each waste listed in Item 9. The Hazardous Waste Report Management Method code is to be entered by the first treatment, storage, or disposal facility (TSDF) that receives the waste and is the code that best describes the way in which the waste is to be managed when received by the TSDF.

Item 20. Designated Facility Owner or Operator Certification of Receipt (Except As Noted in Item 18a)

Enter the name of the person receiving the waste on behalf of the owner or operator of the facility. That person must acknowledge receipt or rejection of the waste described on the manifest by signing and entering the date of receipt or rejection where indicated. Since the Facility Certification acknowledges receipt of the waste except as noted in the Discrepancy Space in Item 18a, the certification should be signed for both waste receipt and waste rejection, with the rejection being noted and described in the space provided in Item 18a. Fully rejected wastes may be forwarded or returned using Item 18b after consultation with the generator. Enter the name of the person accepting the waste on behalf of the owner or operator of the alternate facility or the original generator. That person must acknowledge receipt or rejection of the waste

Figure A-2 (cont'd). EPA *Uniform Hazardous Waste Manifest* form and instructions.

described
on the manifest by signing and entering the date they received or rejected the waste in Item 18c. Partially rejected wastes and residues must be re-shipped under a new manifest, to be initiated and signed by the rejecting TSDF as offeror of the shipment.

What are the instructions for completing the continuation sheet (EPA Form 8700-22A)?

Read all instructions before completing the form.

The form has been designed for use on a 12-pitch (elite) typewriter; a firm point pen may also be used—press down hard.

The form must be used as a continuation sheet to U.S. EPA Form 8700-22 if:

- More than two transporters are to be used to transport the waste; or
- More space is required for the U.S. DOT descriptions and related information in Item 9 of U.S. EPA Form 8700-22.

Federal regulations require generators and transporters of hazardous waste and owners or operators of hazardous waste treatment, storage, or disposal facilities to use the uniform hazardous waste manifest (EPA Form 8700-22) and, if necessary, the continuation sheet (EPA Form 8700-22A) for both interstate and intrastate transportation.

I. Generators

Item 21. Generator's ID Number

Enter the generator's U.S. EPA twelve-digit identification number or, the state generator identification number if the generator site does not have an EPA identification number.

Item 22. Page ___

Enter the page number of the continuation sheet.

Item 23. Manifest Tracking Number

Enter the Manifest Tracking Number from Item 4 of the manifest form to which the continuation sheet is attached.

Item 24. Generator's Name—

Enter the generator's name as it appears in Item 5 on the first page of the manifest.

Figure A-2 (cont'd). EPA *Uniform Hazardous Waste Manifest* form and instructions.

Item 25. Transporter—Company Name

If additional transporters are used to transport the waste described on the manifest, enter the company name of each additional transporter in the order in which they will transport the waste. Enter after the word "Transporter" the order of the transporter. For example, Transporter 3 Company Name. Also enter the U.S. EPA twelve-digit identification number of the transporter described in Item 25.

Item 26. Transporter—Company Name

If additional transporters are used to transport the waste described on the manifest, enter the company name of each additional transporter in the order in which they will transport the waste. Enter after the word "Transporter" the order of the transporter. For example, Transporter 4 Company Name. Each continuation sheet can record the names of two additional transporters. Also enter the U.S. EPA twelve-digit identification number of the transporter named in Item 26.

Item 27. U.S. D.O.T. Description Including Proper Shipping Name, Hazardous Class, and ID Number (UN/NA)

For each row enter a sequential number under Item 27b that corresponds to the order of waste codes from one continuation sheet to the next, to reflect the total number of wastes being shipped. Refer to instructions for Item 9 of the manifest for the information to be entered.

Item 28. Containers (No. And Type)

Refer to the instructions for Item 10 of the manifest for information to be entered.

Item 29. Total Quantity

Refer to the instructions for Item 11 of the manifest form.

Item 30. Units of Measure (Weight/Volume)

Refer to the instructions for Item 12 of the manifest form.

Item 31. Waste Codes

Refer to the instructions for Item 13 of the manifest form.

Item 32. Special Handling Instructions and Additional Information

Refer to the instructions for Item 14 of the manifest form.

Figure A-2 (cont'd). EPA *Uniform Hazardous Waste Manifest* form and instructions.

II. Transporters

Item 33. Transporter—Acknowledgment of Receipt of Materials

Enter the same number of the Transporter as identified in Item 25. Enter also the name of the person accepting the waste on behalf of the Transporter (Company Name) identified in Item 25. That person must acknowledge acceptance of the waste described on the manifest by signing and entering the date of receipt.

Item 34. Transporter—Acknowledgment of Receipt of Materials

Enter the same number of the Transporter as identified in Item 26. Enter also the name of the person accepting the waste on behalf of the Transporter (Company Name) identified in Item 26. That person must acknowledge acceptance of the waste described on the manifest by signing and entering the date of receipt.

III. Owner and Operators of Treatment, Storage, or Disposal Facilities

Item 35. Discrepancy Indication Space

Refer to Item 18. This space may be used to more fully describe information on discrepancies identified in Item 18a of the manifest form.

Item 36. Hazardous Waste Report Management Method Codes

For each field in Item 36, enter the sequential number that corresponds to the waste materials described under Item 27, and enter the appropriate process code that describes how the materials will be processed when received. If additional continuation sheets are attached, continue numbering the waste materials and process code fields sequentially, and enter on each sheet the process codes corresponding to the waste materials identified on that sheet.

What is the public reporting burden associated with the manifest?

Public reporting burden for this collection of information is estimated to average: 30 minutes for generators, 10 minutes for transporters, and 25 minutes for owners or operators of treatment, storage, and disposal facilities. This includes time for reviewing instructions, gathering data, completing, reviewing and transmitting the form. Any correspondence regarding the Paperwork Reduction Act burden statement for the manifest must be sent to the Director of the Collection Strategies Division in EPA's Office of Information Collection at the following address: U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW., Washington, DC 20460. Do not send the completed form to this address.

Figure A-2 (cont'd). EPA *Uniform Hazardous Waste Manifest* form and instructions.

Where can I get a *Uniform Hazardous Waste Manifest*?

Generators can obtain manifest forms from any source registered and approved by EPA to print such forms. (States are not involved with the registration and approval process.) Manifest printers are required to be registered and approved by EPA prior to printing manifest forms for use or distribution. All manifest printers are assigned a unique three-letter suffix that is part of the unique, pre-printed manifest tracking number. The printers are responsible for ensuring manifest tracking numbers remain unique. A list of approved and registered printers can be found at: http://www.epa.gov/osw/hazard/transportation/manifest/registry/printers.htm.

How does the manifest tracking system work?

The manifest form is intended to physically accompany the waste wherever it travels because it serves as the DOT shipping paper. Each individual handler of the waste, the generator, each transporter, and each designated facility must sign the manifest and keep one copy for their records. When the waste reaches the designated facility listed on the manifest, the owner of that facility returns a copy of the manifest to the generator to confirm that the waste has arrived. The owner of the designated facility also gives a copy of the manifest to the transporter that delivered the waste as proof of delivery.

If the waste does not arrive at the designated TSDF within the regulatory time limits, generators must immediately notify EPA or the authorized state environmental agency so that they can investigate and take appropriate action to locate the waste shipment. Generators must retain copies of the manifest for 3 years after the shipment in accordance with RCRA; however, DOD has significantly longer record retention requirements.

The EPA manifest, when completed correctly, also fulfills all DOT paperwork requirements. The manifest also functions as a DOT shipping paper or Bill of Lading (BoL).

Who signs the manifest?

The person who signs the manifest depends on the type of site. Table A-1 identifies the responsibilities. (The use of contractors for Formerly Used Defense Sites [FUDS], Military Munitions Response Program (MMRP) sites, and Civil Works Projects/Activities is only allowed under limited circumstances, as described below.)

In the *Resident Engineer Management Guide (REMG) for Hazardous, Toxic, and Radioactive Waste (HTRW) Projects*, EP 415-1-266, Headquarters U.S. Army Corps of Engineers (HQUSACE) established procedures concerning the manifest signatory authorities.

Table A-1. Signature authority.

Type of Site	Who Signs
Active Military Facility	Military Facility Representative
Active Work for Others Site	Site Owner, unless authorization letter
Base Realignments and Closure Base	Personnel at Base
Formerly Used Defense Site (FUDS)	Corps of Engineers District
Formerly Used Defense, Ordnance & Explosive, Munitions Contaminated Site	Corps of Engineers Military Munitions Design or Remedial Action District
FUSRAP Site	Corps of Engineers District
EPA Superfund Site	EPA, unless delegated to Corps of Engineers
Civil Works Project/Activity	Corps of Engineers District

At sites where the Corps is the owner or responsible agency (e.g., Civil Works Projects, Formerly Utilized Sites Remedial Action Program (FUSRAP), or FUDS), HW manifests will be the responsibility of the Corps representative to sign. USACE representatives will sign manifests "on behalf of USACE." at Civil Works and FUSRAP sites, and "on behalf of the Department of Defense" at FUDS sites.

At Defense Environmental Restoration Program (DERP) - Installation Restoration and Base Realignment and Closure sites, the customer (i.e., the installation or the base) is responsible for the signing of the manifest unless the customer formally requests and authorizes USACE to sign the manifests on its behalf.

For FUDS, where military munitions and/or contamination from military munitions (MM) material are to be manifested offsite, the primary responsibility for signing the shipping documents belongs to the Corps representative from the Military Munitions Design Center or the Military Munitions Remedial Action District. The local construction representative may sign the shipping papers if this is jointly agreed upon by the USACE geographic District and the USACE MM District. (Typically a construction representative does not have the experience to classify DOT Class 1 hazardous materials, hence the logic for signature by the Corps MM representative.)

When the Corps is doing Work for others, it is Corps policy, if requested and authorized in writing by its customers, to sign HW manifests and other related documents on behalf of those customers. In the past, several customers have asked for this including: the EPA, the Federal Emergency Management Agency (FEMA), and the Department of Agriculture's Farm Services Administration (FSA). Corps personnel signing hazardous waste manifests and related documents must ensure that the Corps has been authorized in writing by its customers to do this. The customer's request and authorization must acknowledge that the customer, as the generator of the hazardous waste, retains all responsibilities for that waste. This requirement for prior customer authorization covers the HW manifests, land disposal restriction notification and certification, waste profile sheets, and other necessary forms. It is most appropriate to include this authorization, as well as a customer statement retaining all generator's responsibilities, as a specific provision within a Memorandum of Agreement (MOA), Interagency Agreement (IAG), or correspondence signed by an authorized customer agency official. Authorization for

executing and certifying manifest forms and related documents on behalf of EPA is delegated in EPA's letter dated 18 October 1990 [EP415-1-266, Appendix F] USACE districts may request that the EPA remedial project manager (RPM) provide a site-specific authorization letter to confirm the delegation of authority to sign on behalf of EPA. Authorization for executing and certifying manifest forms and related documents on behalf of FSA must be obtained for every project. FEMA's authorization is provided in the MOA between the Corps and FEMA, signed in 1991.

Under the Nation Response Framework, DOD/USACE is the lead coordinating and executing agency for Emergency Support Function #3 (ESF #3) – Public Works and Engineering Annex. During USACE execution of the debris removal mission (non-hazardous) component of ESF #3, EPA, under ESF #10 - Oil and Hazardous Materials Response Annex, may request that USACE also address hazardous debris and other hazardous materials. In situations where USACE missions are expanded in scope and may require the management of hazardous waste or other materials that require the use of a manifest, USACE staff should initiate the coordination process for signature authority with FEMA and/or EPA early in the process. USACE can execute manifests on behalf of FEMA, EPA, or other agencies provided an MOA between agencies is developed and USACE staff is authorized as a signature agent.

In instances in which a Corps representative must be sent to a remote location, the option of requiring the contractor to sign manifests may be considered. This option can only be used for a specific project after written authorization by the customer and approval by the Construction Division Chief or equivalent level, at the executing District. For FUDS, only the approval of the Construction Division Chief at the executing District is necessary. Even if site circumstances justify authorizing a contractor to sign on behalf of the Corps, the executing District must ensure that the manifest and all supporting papers are accurate. In the unusual situation that a contractor will be authorized to sign a manifest, Corps project staff must ensure that the person to sign is properly trained in a way that is equal to that required of Corps personnel, and that this is authorized in writing, as specified in EP 415-1-266.

Do I need training before I sign a manifest?

Many regulatory agencies require that an individual obtain training when managing and transporting hazardous materials. DOT regulation 49 CFR 172, subpart H, requires that people who perform pre-transportation and transportation functions be trained. Persons who load, unload, or handle hazardous materials (HAZMAT), certify packagings, prepare hazardous materials for transportation, ensure the safety of a shipment, or operate a motor vehicle used to transport HAZMAT must be trained every 3 years. Training for these HAZMAT employees hired after 2 July 1993 has to be completed within 90 days of employment. The employer is responsible for ensuring that HAZMAT employees receive the required training.

In addition, *Defense Transportation Regulations*, [DTR 4500.9-R-Part II, Cargo Movement, Chapter 204, July 2006], require that all DOD employees who prepare and ship hazardous materials by commercial or military vehicle be trained every 24 months.

There are several different and independent training requirements for personnel who ship hazardous materials and hazardous wastes. Often, these training requirements are confused with the DOT requirement. As discussed above, the DOT and DOD requires training for anyone who does anything related to the transportation of hazardous materials. Additionally, OSHA requires hazard communication safety training for employees who handle hazardous materials. Typically, this training teaches the student how to identify the chemical properties of hazardous materials. OSHA courses are typically offered at the facility by the safety officer. EPA RCRA regulations require that persons generating over 1000 kg (2200 lb) of hazardous waste in a month (Large Quantity Generators) be trained in their facility's specific emergency procedures, as well as any other function-specific aspects of managing hazardous waste at their facility. This training is also typically conducted at the facility as it is facility specific.

With few exceptions, the training requirements of DOT, EPA, and OSHA must be met to fully comply with regulatory requirements and to transport hazardous wastes. DTR 4500.9-R-II provides the DOD approved list of DOT training sources. A partial list of approved courses can be found in Table A-9.

How do I fill out the manifest?

To properly complete the HW manifest form, EPA has published a complete set of instructions. These instructions are included in Figure A-2 of this document. The instructions are very detailed and provide an excellent discussion of the information that should be placed into each box on the form. Unfortunately, determining the correct information to be placed into each item is slightly more complicated. The following discussions will assist the reader in determining how to complete all the required boxes of the manifest that are not self-explanatory.

Where do I start?

To ship hazardous wastes offsite, you should start planning early so you can gather the required information for completion of the manifest. To complete the required shipping paper, the manifest in this case, several pieces of information are required. First, it is imperative that the waste be identified properly, either through analytical laboratory analysis or by using the waste generator's knowledge.

Secondly, the waste profile sheet must be completed. Although not required by regulation, most TSDFs require a waste profile sheet be completed before they will accept waste into their facility. Waste profile sheets vary among TSDFs. Once the laboratory analysis is available, the contractor should get the waste profile sheet from the TSDF and then complete the form. Because the waste profile form format is not specified in the regulations, no two profile forms are the same and anyone knowledgeable about the waste stream can sign one. Once this is done, a proper DOT shipping name can be determined based on the history and chemical analysis of the waste. In practice, the waste profile sheets are typically prepared by the contractor and signed by the person who signs the manifest. However, it is recommended that the contractor be responsible for signing the waste profile sheets since the contractor is typically responsible for

performing the waste characterization sampling and obtaining the chemical analysis from the testing laboratory.

How do I get an EPA identification number?

Item 1 on the HW manifest requires the generator's EPA identification (ID) number. The ID number is a unique 12-digit number assigned to each individual site by the federal EPA. A generator of hazardous waste must not treat, store, dispose of, transport, or offer for transportation such waste without having received an EPA identification number. A generator may obtain a number by applying to the EPA Administrator or the state administrator using EPA Form 8700-12, *RCRA Subtitle C Site Identification Form*. Figure A-3 illustrates the form. On rare occasions, both the federal EPA and the state EPA may issue different ID numbers to a generator. For purposes of completing the manifest, the manifest instructions require that the federal EPA number be used. The form and instructions for completing the form can be downloaded from the EPA website: http://www.epa.gov/osw/inforesources/data/form8700/forms.htm.

Who completes and signs the *Identification Form*?

The need for an EPA identification number will depend on the type of site, the type of waste managed at the site and the volume of waste managed at the site. Likewise, who applies for the number will also vary.

At a military installation, either active or being closed, and at a Work for Others site, the facility will in most cases already have an EPA identification number. This number should be used for all waste generated at the facility. If the facility does not have a number, the facility designee should complete the forms and request one from the EPA.

At a FUDS or a FUSRAP site, the Corps will have to secure the number. You should request the number during the study or design phase because it routinely takes several months to receive one from the regulators. If the number is not obtained at this time, then you should get it as soon as construction is scheduled to begin. The form can be completed by either the Corps representative or a contractor. The person responsible for signing the form will be the owner/operator or designated representative of the facility in which the waste is generated. On a FUDS or FUSRAP site, this is the Corps. The District Commander should sign or delegate signature authority for this form.

At an EPA Superfund site, the EPA Remedial Project Manager should secure the number. If the Project Manager has not done this, he or she may ask the Corps for assistance. If this is the case, EPA should sign the form because it is the owner/operator of the site.

At a Civil Works project, the project engineer or designated representative normally completes and signs the form.

Figure A-3 provides the current form.

SEND COMPLETED FORM TO: The Appropriate State or EPA Regional Office.	United States Environmental Protection Agency **RCRA SUBTITLE C SITE IDENTIFICATION FORM**	
1. Reason for Submittal (See Instructions on page 13.) MARK ALL BOX(ES) THAT APPLY	Reason for Submittal: ☐ To provide Initial Notification of Regulated Waste Activity (to obtain an EPA ID Number for hazardous waste, universal waste, or used oil activities) ☐ To provide Subsequent Notification of Regulated Waste Activity (to update site identification information) ☐ As a component of a First RCRA Hazardous Waste Part A Permit Application ☐ As a component of a Revised RCRA Hazardous Waste Part A Permit Application (Amendment #_____) ☐ As a component of the Hazardous Waste Report	
2. Site EPA ID Number (page 14)	EPA ID Number |__|__|__|__|__|__|__|__|__|__|__|__|__|	
3. Site Name (page 14)	Name:	
4. Site Location Information (page 14)	Street Address:	
	City, Town, or Village:	State:
	County Name:	Zip Code:
5. Site Land Type (page 14)	Site Land Type: ☐ Private ☐ County ☐ District ☐ Federal ☐ Indian ☐ Municipal ☐ State ☐ Other	
6. North American Industry Classification System (NAICS) Code(s) for the Site (page 14)	A. |__|__|__|__|__|__|	B. |__|__|__|__|__|__|
	C. |__|__|__|__|__|__|	D. |__|__|__|__|__|__|
7. Site Mailing Address (page 15)	Street or P. O. Box:	
	City, Town, or Village:	
	State:	
	Country:	Zip Code:
8. Site Contact Person (page 15)	First Name: MI:	Last Name:
	Phone Number: Extension:	Email address:
9. Operator and Legal Owner of the Site (pages 15 and 16)	A. Name of Site's Operator:	Date Became Operator (mm/dd/yyyy):
	Operator Type: ☐ Private ☐ County ☐ District ☐ Federal ☐ Indian ☐ Municipal ☐ State ☐ Other	
	B. Name of Site's Legal Owner:	Date Became Owner (mm/dd/yyyy):
	Owner Type: ☐ Private ☐ County ☐ District ☐ Federal ☐ Indian ☐ Municipal ☐ State ☐ Other	

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Figure A-3. EPA Form 8700-12, *RCRA Subtitle C Site Identification Form*.

EPA ID NO: |__|__|__|__|__|__|__|__|__|__|__|__| OMB#: 2050-0028 Expires 06/30/2009

9. Legal Owner (Continued) Address	Street or P. O. Box:	
	City, Town, or Village:	
	State:	
	Country:	Zip Code:

10. Type of Regulated Waste Activity
Mark "Yes" or "No" for all activities; complete any additional boxes as instructed. (See instructions on pages 17 to 20.)

A. Hazardous Waste Activities
Complete all parts for 1 through 6.

Y ☐ N ☐ 1. Generator of Hazardous Waste
If "Yes", choose only one of the following - a, b, or c.

☐ a. LQG: Greater than 1,000 kg/mo (2,200 lbs./mo.) of non-acute hazardous waste; or

☐ b. SQG: 100 to 1,000 kg/mo (220 - 2,200 lbs./mo.) of non-acute hazardous waste; or

☐ c. CESQG: Less than 100 kg/mo (220 lbs./mo.) of non-acute hazardous waste

In addition, indicate other generator activities.

Y ☐ N ☐ d. United States Importer of Hazardous Waste

Y ☐ N ☐ e. Mixed Waste (hazardous and radioactive) Generator

Y ☐ N ☐ 2. Transporter of Hazardous Waste

Y ☐ N ☐ 3. Treater, Storer, or Disposer of Hazardous Waste (at your site) Note: A hazardous waste permit is required for this activity.

Y ☐ N ☐ 4. Recycler of Hazardous Waste (at your site)

Y ☐ N ☐ 5. Exempt Boiler and/or Industrial Furnace
If "Yes", mark each that applies.
☐ a. Small Quantity On-site Burner Exemption
☐ b. Smelting, Melting, and Refining

Y ☐ N ☐ 6. Underground Injection Control

B. Universal Waste Activities

Y ☐ N ☐ 1. Large Quantity Handler of Universal Waste (accumulate 5,000 kg or more) [refer to your State regulations to determine what is regulated]. Indicate types of universal mark all boxes that apply:

	Manage
a. Batteries	☐
b. Pesticides	☐
c. Mercury containing equipment	☐
d. Lamps	☐
e. Other (specify) _____	☐
f. Other (specify) _____	☐
g. Other (specify) _____	☐

Y ☐ N ☐ 2. Destination Facility for Universal Waste
Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities
Mark all boxes that apply.

Y ☐ N ☐ 1. Used Oil Transporter
If "Yes", mark each that applies.
☐ a. Transporter
☐ b. Transfer Facility

Y ☐ N ☐ 2. Used Oil Processor and/or Re-refiner
If "Yes", mark each that applies.
☐ a. Processor
☐ b. Re-refiner

Y ☐ N ☐ 3. Off-Specification Used Oil Burner

Y ☐ N ☐ 4. Used Oil Fuel Marketer
If "Yes", mark each that applies.
☐ a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner
☐ b. Marketer Who First Claims the Used Oil Meets the Specifications

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Figure A-3 (cont'd). EPA Form 8700-12, *RCRA Subtitle C Site Identification Form*.

EPA ID NO: |__|__|__|__|__|__|__|__|__|__|__|__| OMB#: 2050-0028 Expires 06/30/2009

11. Description of Hazardous Wastes (See Instructions on page 21.)

A. Waste Codes for Federally Regulated Hazardous Wastes. Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g., D001, D003, F007, U112). Use an additional page if more spaces are needed.

B. Waste Codes for State-Regulated (i.e., non-Federal) Hazardous Wastes. Please list the waste codes of the State-regulated hazardous wastes handled at your site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed for waste codes.

12. Comments (See Instructions on page 21.)

13. Certification. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.
For the RCRA Hazardous Waste Part A Permit Application, all operator(s) and owner(s) must sign (see 40 CFR 270.10 (b) and 270.11).
(See Instructions on page 21.)

Signature of operator, owner, or an authorized representative	Name and Official Title (type or print)	Date Signed (mm/dd/yyyy)

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Figure A-3 (cont'd). EPA Form 8700-12, *RCRA Subtitle C Site Identification Form*.

What is the emergency response phone?

Item 3 of the HW manifest is for the emergency response phone number. DOT requires an emergency response phone number on the shipping paper for shipments of all hazardous materials. The emergency response phone number field provides vital information for emergency responders to use in the event of an accident or other serious incident that occurs while a hazardous materials shipment is in transportation. The phone number must belong to the generator or other agency or organization that accepts responsibility for providing detailed information about the wastes in the shipment. USACE may contract with their contractor to provide this service if desired.

This number must correspond to a phone that is monitored 24 hours per day while the waste is in transportation (including storage incidental to transportation). The person assigned to this phone must have either personal knowledge or immediate access to a person with knowledge of the material being shipped, as well as comprehensive emergency response, spill cleanup, and incident mitigation information about the material. Placing the emergency response phone number in Item 3 is appropriate for those cases in which the listed phone number applies to every item listed in Item 9b of the HW manifest. However, there may be instances where more than one emergency response number may apply to the various waste items listed on the manifest. In these cases, EPA and DOT regulations specify that the applicable emergency response phone number should appear immediately following the shipping descriptions under Item 9b.

DOT also requires that the person who offers for transportation, accepts for transportation, transfers, stores, or otherwise handles a hazardous material during transportation, provide emergency response information with the shipment.

The following emergency response information is required:

- Basic description and technical name of the hazardous material.
- Immediate hazards to health.
- Risks of fire or explosion.
- Immediate precautions to be taken in the event of an accident or incident.
- Immediate methods for handling fires.
- Initial methods for handling spills or leaks in the absence of fire.
- Preliminary first aid measures.

The required information must be:

- Printed legibly in English.
- Available for use away from the package containing the hazardous material.
- Presented on a shipping paper, or in a document that includes both the basic description and technical name of the hazardous material, such as a *Materials Safety Data Sheet*.

In practice, the *Emergency Response Guidebook* (*ERG*) is used to fulfill this requirement when shipping hazardous wastes. A copy of the ERG can be found on the Internet at

http://hazmat.dot.gov/pubs/erg/gydebook.htm. When the ERG is used, the guide number should be placed in Item 14 on the manifest for each waste or material identified in Item 9b. The shipper must then ensure that the transporter has a copy of the ERG aboard his vehicle or provide a copy of the applicable guide pages with the manifest.

What is the Manifest Tracking Number?

Item 4 of the HW manifest is the Manifest Tracking Number (MTN) and is the number used to track your manifest. The MTN is an alphanumeric identification number (i.e., a unique three-letter suffix preceded by nine numerical digits), which is pre-printed in Item 4 of the manifest by an EPA-approved registrant. This number cannot be changed by the generator.

Where do I put my generator information?

Item 5 of the HW manifest is where the generator is identified. The box in Item 5 is subdivided into two boxes. On the left side of the box, the generator would enter his name and mailing address. This address is extremely important as this is the address to which the designated facility will send back the completed manifest. If the actual physical site address is not the same as the site mailing address, then EPA asks that the generator also identify the physical site address in the right-hand side of the box. The generator's normal business phone number is also recorded in this box.

What do I include in the transporter's boxes?

The generator enters the company name and the U.S. EPA ID number of the transporter in Item 6. If the waste will be transferred to another transporter, then that transporter and associated EPA ID number must also be identified in Item 7. If more than two transporters are needed, the continuation page should be used. In addition, it should be noted that the hazardous waste transporters must comply with the requirements of 40 CFR 263 *Standards Applicable to Transporters of Hazardous Wastes.* Typically, states have programs in place to issue Hazardous Waste Hauler's permits to transporters under the provisions of their implementing regulations.

So, where do I identify my hazardous wastes?

Items 9 through 13 on the HW manifest identify the DOT-required information pertaining to the wastes to be transported as well the RCRA waste codes for the wastes.

An "X" is placed in Item 9a if the HW manifest identified both DOT-regulated and non-DOT regulated materials. The "X" indicates the material is DOT regulated. It should be noted that all hazardous wastes by definition are DOT regulated materials. The HW instructions and the DOT instructions on BoLs, indicate that you only need to place the "X" in the appropriate box when the shipment contains hazardous materials and non-hazardous materials. However, it is good practice to always place the "X" in the box when the material being described is a hazardous

material. It is also important to note that DOT instructions on shipping papers allow the "X" to be substituted with "RQ" when the packaging contains a reportable quantity of a hazardous substance. However, EPA instructions for HW manifests do not include this provision so it is recommended that "RQ," when applicable, be placed in association with the basic shipping description in Item 9b.

Item 9b is one of the most important and difficult items to correctly complete. Item 9b contains the DOT basic shipping description (BSD) for the hazardous waste. The BSD includes the proper shipping name (PSN) of the waste, the hazard class (HC) or division, the identification number, and the packaging group (PG) of the waste. This information is derived from knowing the analytical results and chemical properties of the waste streams and knowing the proper way to classify waste and hazardous materials under DOT regulations.

Item 10 of the manifest identifies the number and type of containers associated with the basic shipping description listed in Item 9b. Similarly, Items 11 and 12 denote the total quantity and unit weight or volume associated with the description. The instructions, shown in Figure A-2, provide the authorized abbreviations for these units of measure.

The waste codes associated with the waste stream are identified in Item 13. Enter up to six federal and state waste codes that best describe the waste stream identified in Item 9b. The federal codes most representative of the waste stream must be entered. In addition, if state and federal waste codes are not redundant, the state codes must be entered.

What is hazardous waste?

To be able to accurately complete Item 9b of the manifest, you must first identify your waste in accordance with the *Resource Conservation and Recovery Act* (RCRA). As stated above, you may use "generator knowledge" of the waste, or you may have a laboratory analyze it [40 CFR 262.11]. Generator knowledge means that the generator knows enough about how the waste was generated and where it came from to properly classify it.

Waste can be classified as hazardous if it is characteristic or listed, or both. The four characteristics are: ignitability, corrosivity, reactivity, and toxicity. The definitions of each type of characteristic waste are found in 40 CFR 261, subpart C. This section of the CFR should be consulted for the specific definitions.

In general, a waste is ignitable if it is a liquid, other than an aqueous solution containing less than 24% alcohol by volume and has a flashpoint less than 140°F (60°C). There are several more specific definitions in 40 CFR 261.21; however, this is the most common. All wastes having a flashpoint below 140°F are assigned the waste code D001.

In general, a corrosive waste is one that is aqueous and has a pH less than or equal to 2.0 or greater than or equal to 12.5. There are more definitions in 40 CFR 261.22; however, this is the most common one. All wastes meeting this definition are assigned the waste code D002.

Reactivity is probably the hardest characteristic to define. In 40 CFR 261.23, EPA has provided eight different definitions. Basically, a reactive waste is one that violently reacts with water, or is normally unstable and readily undergoes change without detonating, or potentially can form explosive mixtures with water. All wastes meeting the definition of reactivity are assigned the waste code D003.

The last characteristic is toxicity. If the waste fails the Toxicity Characteristic Leaching Procedure, an analytical test, for one or more contaminants in 40 CFR 261.24, it is assigned the corresponding waste code for that contaminant, which is also found in 40 CFR 261.24.

Another way in which wastes may be hazardous is for the waste to be "listed." There are four lists of hazardous wastes: the F-list, K-list, P-list, and U-list.

The F-list is hazardous waste from non-specific sources. In general, these are wastes that EPA has determined to be hazardous, but that are not generated by a particular industry or manufacturing process. These wastes include certain solvents, plating wastes, metal treating wastes, wood preserving wastes, etc. The complete F-list can be found in 40 CFR 261.31.

The K-list is hazardous waste from specific sources. This includes wastes that are generated by particular industries. Wastes on the K-list include certain wastes generated from various processes including, but not limited to, the wood preservation, pesticide, explosives, and pharmaceutical industries. The complete K-list is found in 40 CFR 261.32.

The P-list and the U-list are probably the most misunderstood lists. The P-list and U-list are found in 40 CFR 261.33. These wastes are commercial chemical products, off-specification species, container residues, and spills thereof. The phrase "commercial chemical product" means the pure or technical grade of the chemical that has *never been used for its intended purpose*. It does not refer to a manufacturing process waste containing a P- or U-listed chemical. If the chemical has never been used for its intended purpose, yet is to be disposed of, then that chemical is P- or U-listed. If, however, the chemical *was* used for its intended purpose, for example as a solvent, when it is discarded, it will probably be F-listed or characteristic. It will no longer be P- or U-listed hazardous waste. The only difference between the P- and U-list is that the chemicals appearing in the P-list are acute hazardous waste, meaning they are more toxic than the chemicals appearing on the U-list.

You should note that there are three other times when you may have a hazardous waste. First, if you have an environmental media, such as soil or water, that contains a listed hazardous waste, then all of the media is considered hazardous waste until it no longer contains any listed waste. This is called the "contained-in" policy. This policy was codified on 18 August 1992 in the *Federal Register*. The second circumstance is called the "mixture" rule. The mixture rule was codified as 40 CFR 261.3 (b)(2), (b)(3), (g)(1), and (g)(2). This rule basically states that a listed waste mixed with non-hazardous waste makes the entire mixture a hazardous waste. Also that if a characteristic waste is mixed with non-hazardous waste and if the resultant mixture is characteristic, then the entire mixture is a hazardous waste. (There is a prohibition against

dilution as a means of treating a hazardous waste.) Lastly, there is the "derived-from" rule. The "derived-from" rule is codified in 40 CFR 261.3(c)(2)(i) and 40 CFR 261.3(d)(1) and (2). This rule basically states that all residues derived from the treatment, storage, or disposal of listed hazardous waste must also be treated as the listed hazardous waste. Waste derived from the treatment, storage or disposal of characteristic wastes must be tested to determine if they still exhibit the characteristic. These three principles are very difficult concepts. When confronted with these types of determinations, you should seek help from your regulatory specialist or legal counsel when classifying the waste.

The EPA hazardous waste codes are to be placed in Item 13 of the hazardous waste manifest. Enter up to six federal and state waste codes to describe the waste stream identified in Item 9b. The federal HW codes most representative of the waste stream must be entered. Then, state waste codes that are not redundant with the federal codes must be entered.

Upon determining your waste codes and entering them in Item 13 of the manifest, you are ready to embark on determining a DOT basic shipping description. But before we can do that, it is necessary to understand the DOT Hazardous Materials Table (HMT).

What do all the columns in the HMT mean?

The materials listed in the HMT are DOT-regulated materials if they are to be transported. For each material listed in the HMT, the HMT identifies the hazard class, packing group, identification number, and packaging requirements or specifies that the material is forbidden in transportation, and gives the alternate proper shipping name or directs the user to the preferred proper shipping name. The table specifies or references requirements for labeling, packaging, quantity limits aboard aircraft, and stowage of hazardous materials aboard vessels. There are 10 columns in the HMT (Figure A-4). These columns are discussed below.

Column 1: Symbols

Column 1 of the HMT contains six symbols (+, A, D, I, W, and G). The meanings of those symbols are:

+ The plus (+) fixes the proper shipping name, hazard class, and packing group for that entry without regard to whether the material meets the definition of that class or packing group or any other hazard class definition. An appropriate alternate proper shipping name and hazard class may be authorized by DOT.

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	PG	Label Codes	Special provisions	(8) Packaging (§173.***)			(9) Quantity limitations		(10) Vessel stowage	
							Exceptions	Nonbulk	Bulk	Passenger aircraft/rail	Cargo aircraft only	Location	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Accelerene, see p-Nitrosodimethylaniline.	.....			.....		.....	.....	.....	.....	.....		
	Accumulators, electric, see Batteries, wet etc.	.....			.....		.....	.....	.....	.....	.....		
D	Accumulators, pressurized, pneumatic *or* hydraulic (*containing nonflammable gas.*	2.2	NA1956		2.2		306	306	None ..	No limit	No limit	A	
	Acetal	3	UN1088	II	3	T7	150	202	242	5 L	60 L	E	
	Acetaldehyde	3	UN1089	I	3	A3, B16, T20, T26, T29	None	201	243	Forbidden	30 L	E	
A	Acetaldehyde ammonia	9	UN1841	III	9		155	204	240	200 kg	200 kg	A	34
	Acetaldehyde oxime	3	UN2332	III	3	B1, T8	150	203	242	60 L	220 L	A	
	Acetic acid, glacial *or* Acetic acid solution, *with more than 80 percent acid, by mass.*	8	UN2789	II	8, 3	A3, A6, A7, A10 B2, T8	154	202	243	1 L	30 L	A	
	Acetic acid solution, *with more than 10 percent but not more than 80 percent acid, by mass.*	8	UN2790	II	8	A3, A6, A7, A10 B2, T8	154	202	242	1 L	30 L	A	
	Acetic anhydride	8	UN1715	II	8, 3	A3, A6, A7, A10, B2, T8	154	202	243	1 L	30 L	A	40
	Acetone	3	UN1090	II	3	T8	150	202	242	5 L	60 L	B	
	Acetone cyanohydrin, stabilized	6.1	UN1541	I	6.1	2, A3, B9, B14, B32, B76, B77, N34, T38, T43, T45	None	227	244	Forbidden	30 L	D	25, 40, 49
	Acetone oils	3	UN1091	II	3	T7, T30	150	202	242	5 L	60 L	B	
	Acetonitrile	3	UN1648	II	3	T14	150	202	242	1 L	60 L	B	40

Figure A-4. Column headings in the *Hazardous Materials Table* (HMT).

A The letter "A" restricts the application of requirements to materials offered or intended for transportation by aircraft, unless the material is a hazardous substance or a hazardous waste (see Figure A-4).

D The letter "D" identifies proper shipping names that are appropriate for describing materials for domestic transportation but may be inappropriate for international transportation under the provisions of international regulations (e.g., International Maritime Organization [IMO], International Civil Aviation Organization [ICAO]). An alternate proper shipping name may be selected when either domestic or international transportation is involved.

I The letter "I" identifies proper shipping names that are appropriate for describing materials in international transportation. An alternate proper shipping name may be selected when only domestic transportation is involved.

W The letter "W" restricts the application of requirements to materials offered or intended for transportation by vessel, unless the material is a hazardous substance or a hazardous waste.

G The letter "G" identifies proper shipping names for which one or more technical names of the hazardous materials must be entered in parentheses, in association with the basic shipping description.

Column 2: Hazardous materials descriptions and proper shipping names

Column 2 lists the hazardous materials descriptions and proper shipping names. In general, the rule for column 2 is that you can only use the name found in column 2 as the PSN if it is in Roman type. When one entry references another entry by use of the word "see," if both names are in Roman type, either name may be used as the proper shipping name (e.g., Ethyl alcohol, *see* Ethanol). The PSN may be used in the singular or plural and in either uppercase or lowercase letters. Punctuation marks and words in italics are not part of the proper shipping name, but may be used in addition to the proper shipping name. The word "poison" or "poisonous" may be used interchangeably with the word "toxic" when only domestic transportation is involved.

Column 3: Hazard class or division

Column 3 contains a designation of the hazard class or division corresponding to each proper shipping name, or the word "Forbidden." A material for which the entry in this column is "Forbidden" may not be offered for transportation or transported unless it is diluted, stabilized, or incorporated in a device. Both the primary and subsidiary hazard class must be identified in the basic shipping description. There are nine hazard classes.

Class 1 – Explosives. An explosive means any substance or article, including a device, which is designed to function by explosion, or which, by chemical reaction within itself, is able to function in a similar manner even if not designed to function by explosion. The term includes a pyrotechnic substance or article, unless the substance or article is otherwise classed. Explosives in Class 1 are divided into six divisions.

Class 2 – Gases. There are three divisions of gases. A flammable gas (Division 2.1) means any material that is a gas at 20°C (68°F) or less and 101.3 kPa (14.7 psia) of pressure (a material that has a boiling point of 20°C (68°F) or less at 101.3 kPa (14.7 psia)), which is ignitable at 101.3 kPa (14.7 psia) when in a mixture of 13% or less by volume with air; or has a flammable range at 101.3 kPa (14.7 psia) with air of at least 12% regardless of the lower limit. A non-flammable, nonpoisonous compressed gas (Division 2.2) means any material (or mixture) that exerts in the packaging an absolute pressure of 280 kPa (40.6 psia) or greater at 20°C (68°F), or is a cryogenic liquid, and does not meet the definition of Division 2.1 or 2.3. A gas poisonous by inhalation (Division 2.3) means a material that is a gas at 20°C (68°F) or less and a pressure of 101.3 kPa (14.7 psia) (a material that has a boiling point of 20°C (68°F) or less at 101.3 kPa (14.7 psia)) and is known to be so toxic to humans as to pose a hazard to health during transportation.

Class 3 – Flammable Liquids. A flammable liquid (Class 3) means a liquid having a flash point of not more than 60°C (140°F), or any material in a liquid phase with a flash point at or above 37.8°C (100°F) that is intentionally heated and offered for transportation or transported at or above its flash point in a bulk packaging.

Class 4 – Flammable Solid, Spontaneously Combustible or Dangerous When Wet. A flammable solid (Division 4.1) means, in general, a desensitized explosive that, when dry, is a Class 1 explosive, which is wetted with sufficient water, alcohol, or plasticizer to suppress

explosive properties; and is specifically authorized by name in the HMT or by the DOT Associate Administrator. Class 4 also includes self-reactive materials. These are materials that are thermally unstable and that can undergo a strongly exothermic decomposition even without participation of oxygen. A spontaneously combustible material (Division 4.2) means a pyrophoric material. A pyrophoric material is a liquid or solid that, even in small quantities and without an external ignition source, can ignite within five (5) minutes after coming in contact with air or a self-heating material. A dangerous when wet material (Division 4.3) means a material that, by contact with water, is liable to become spontaneously flammable or to give off flammable or toxic gas at a rate greater than 1 L per kilogram of the material, per hour.

Class 5 – Oxidizer or Organic Peroxide. An oxidizer (Division 5.1) means a material that may, generally by yielding oxygen, cause or enhance the combustion of other materials. An organic peroxide (Division 5.2) means any organic compound that contains oxygen (O) in the bivalent -O-O- structure and that may be considered a derivative of hydrogen peroxide, where one or more of the hydrogen atoms have been replaced by organic radicals.

Class 6 – Poisonous Material or Infectious Substance. A poisonous material (Division 6.1) means a material, other than a gas, which is known to be so toxic to humans as to afford a hazard to health during transportation, or which, in the absence of adequate data on human toxicity is presumed to be toxic to humans because it falls within any one of the following categories when tested on laboratory animals. An infectious material (Division 6.2) means a material known or reasonably expected to contain a pathogen. A pathogen is a microorganism (including bacteria, viruses, rickettsiae, parasites, fungi) or other agent, such as a proteinaceous infectious particle (prion), that can cause disease in humans or animals.

Class 7 – Radioactive Materials. A radioactive material (Class 7) means any material containing radionuclides where both the activity concentration and the total activity in the consignment exceed the values specified in 49 CFR §173.436 or values derived according to the instructions in §173.433.

Class 8 – Corrosive Materials. A corrosive material (Class 8) means a liquid or solid that causes full thickness destruction of human skin at the site of contact within a specified period of time. It is a liquid (or a solid that may become liquid during transportation) that has a severe corrosion rate on steel or aluminum.

Class 9 – Miscellaneous Materials. A miscellaneous hazardous material (Class 9) means a material that presents a hazard during transportation but does not meet the definition of any other hazard class. This class includes any material that has an anesthetic, noxious, or other similar property that could cause extreme annoyance or discomfort to a flight crew member so as to prevent the correct performance of assigned duties; or any material that meets the definition for an elevated temperature material, a hazardous substance, a hazardous waste, or a marine pollutant.

A list of the hazard classes can be found in Table A-2. The full detailed definitions of each hazard class are found in 49 CFR 173.

Table A-2. Hazard classes.

Class	Division	Name of Class or Division	49 CFR Reference for Definitions
None	–	Forbidden materials	173.21
None	–	Forbidden explosives	173.54
1	1.1	Explosives (with a mass explosion hazard)	173.50
1	1.2	Explosives (with a projection hazard)	173.50
1	1.3	Explosives (with predominately a fire hazard)	173.50
1	1.4	Explosives (with no significant blast hazard)	173.50
1	1.5	Very insensitive explosives; blasting agents	173.50
1	1.6	Extremely insensitive detonating substances	173.50
2	2.1	Flammable gas	173.115
2	2.2	Non-flammable compressed gas	173.115
2	2.3	Poisonous gas	173.115
3	–	Flammable and combustible liquid	173.120
4	4.1	Flammable solid	173.124
4	4.2	Spontaneously combustible material	173.124
4	4.3	Dangerous when wet material	173.124
5	5.1	Oxidizer	173.127
5	5.2	Organic peroxide	173.128
6	6.1	Poisonous materials	173.132
6	6.2	Infectious substance (etiologic agent)	173.134
7	–	Radioactive material	173.403
8	–	Corrosive material	173.136
9	–	Miscellaneous hazardous material	173.140
None		Other regulated material: ORM-D	173.144

Column 4: Identification number

Column 4 lists the identification number assigned to each proper shipping name. Those preceded by the letters "UN" are associated with proper shipping names that are appropriate for international transportation, as well as domestic transportation. Those preceded by the letters "NA" are associated with proper shipping names recognized domestically, but not recognized for international transportation, except to and from Canada (North America).

Column 5: Packing group

Column 5 specifies one or more packing groups assigned to a material corresponding to the proper shipping name and hazard class for that material. Class 2, Class 7, Division 6.2 (other than regulated medical wastes), and Other Regulated Material-Consumer Quantity (ORM-D) materials, do not have packing groups. Packing Groups I, II, and III indicate the degree of danger presented by the material, being great, medium, or minor, respectively. If an entry needs more than one packing group, it is determined using the criteria for assignment of packing groups specified in subpart D of part 173. The packing group corresponds to the integrity of the package.

Column 6: Labels

Column 6 specifies codes for the hazard warning labels that have to be on a package filled with that particular hazardous material, unless the package is otherwise excepted from labeling. The first code shows the primary hazard of the material. Additional label codes show subsidiary hazards. Provisions in 49 CFR 172.402 may require that an additional label, other than that

specified in column 6, be affixed to the package. The codes contained in column 6 are defined in 49 CFR 172.101(g) and shown below.

Table A-3. Label substitution table.

Label Code	Label Name
1	Explosive
1.1[1]	Explosive 1.1[1]
1.2[1]	Explosive 1.2[1]
1.3[1]	Explosive 1.3[1]
1.4[1]	Explosive 1.4[1]
1.5[1]	Explosive 1.5[1]
1.6[1]	Explosive 1.6[1]
2.1	Flammable Gas
2.2	Non-Flammable Gas
2.3	Poison Gas
3	Flammable Liquid
4.1	Flammable Solid
4.2	Spontaneously Combustible
4.3	Dangerous When Wet
5.1	Oxidizer
5.2	Organic Peroxide
6.1 (inhalation hazard, Zone A or B)	Poison Inhalation Hazard
6.1 (other than inhalation hazard, Zone A or B)[2]	Poison
6.2	Infectious substance
7	Radioactive
8	Corrosive
9	Class 9

[1]Refers to the appropriate compatibility group letter.
[2]The packing group for a material is indicated in column 5 of the table.

Column 7: Special provisions

When column 7 refers to a special provision code for a hazardous material, the meaning and requirements of that provision are found in 49 CFR 172.102. Special provisions contain packaging provisions, prohibitions, and exceptions from requirements for particular quantities or forms of materials, and requirements or prohibitions applicable to specific modes of transportation.

A code consisting only of numbers (for example, “11”) is multi-modal in application and may apply to bulk and non-bulk packagings.

A code containing the letter “A” refers to a special provision that applies only to transportation by aircraft.

A code containing the letter "B" refers to a special provision that applies only to bulk packaging requirements. Unless otherwise provided in this subchapter, these special provisions do not apply to UN, IM Specification portable tanks, or IBCs.

A code containing the letters "IB" or "IP" refers to a special provision that applies only to transportation in Intermediate Bulk Containers (IBCs).

A code containing the letter "N" refers to a special provision that applies only to non-bulk packaging requirements.

A code containing the letter "R" refers to a special provision that applies only to transportation by rail.

A code containing the letter "T" refers to a special provision that applies only to transportation in UN or IM Specification portable tanks.

A code containing the letters "TP" refers to a portable tank special provision for UN or IM Specification portable tanks that is in addition to those provided by the portable tank instructions or the requirements in part 178 of this subchapter.

A code containing the letter "W" refers to a special provision that applies only to transportation by water.

Column 8: Packaging authorizations

Columns 8A, 8B, and 8C specify the applicable sections for exceptions, non-bulk packaging requirements, and bulk packaging requirements. You assume that "49 CFR 173" precedes the designated numerical entry in these columns. For example, the entry "202" in column 8B, which goes with the proper shipping name "Gasoline," tells you that, for this material, conformance to non-bulk packaging requirements of 49 CFR 173.202 is required. Column 8A contains exceptions from some of the requirements. "None" in this column means no packaging exceptions are authorized. Column 8B references prescribes non-bulk packaging requirements. A "None" in this column means non-bulk packagings are not authorized, except by special provisions in column 7. Column 8C specifies the bulk packagings requirements. A "None" in this column means bulk packagings are not authorized, except as may be provided by special provisions in column 7.

Column 9: Quantity limitations

Columns 9A and 9B specify the maximum quantities that may be offered for transportation in one package by passenger-carrying aircraft or passenger-carrying rail car (column 9A) or by cargo aircraft only (column 9B). "Forbidden" means just that: do not ship the material that way. In addition, the quantity limitation is "net," except where otherwise specified, such as for "Consumer commodity," which specifies "30 kg gross."

Column 10: Vessel stowage requirements

Column 10A (Location) specifies the authorized stowage locations onboard cargo and passenger vessels. Column 10B (Other provisions) specifies codes for stowage requirements for specific hazardous materials. The meaning of each code in column 10B is given in 49 CFR 176.84.

How do I determine the DOT basic shipping description?

The most difficult task that you will face in preparing a manifest is completing Item 9b, the U.S. DOT description, i.e., the basic shipping description. Once the Proper Shipping Name (PSN) is determined, deriving the basic shipping description is much easier.

The first step in identifying the PSN of a material is to determine whether or not the material meets one of the nine DOT hazard classes and packing groups as specified in 49 CFR 173. If the material being shipped does not meet the criteria of any hazard class, then it is not regulated as a hazardous material.

After you have determined the proper hazard class and packing group, you should find the most appropriate PSN from column 2 of the HMT in 49 CFR 172.101, with column 3 and 5 entries that match the designated hazard class and packing group. One page of the HMT has been provided in Figure A-4 as an example.

Remember, you cannot use a PSN unless it appears in the HMT!

Recall that a "hazardous material" is a DOT definition. Hazardous materials are listed in the HMT in 49 CFR 172.101. If the material meets the hazard class and packing group and is found in the HMT, the material is a DOT-regulated hazardous material. The major hazard classes are listed in the Table A-2.

A hazardous material is defined either by its class (or division) number, its class name, or by the letters "ORM-D." Table A-2 lists class numbers, division numbers, class or division names, and those sections of the regulation that contain definitions for classifying hazardous materials, including forbidden materials.

By referring to the hazard class and the referenced CFR citation, you will find the DOT definition of each hazard class.

In some cases, the material to be shipped may not be regulated by DOT in any hazard class, but may be a hazardous substance, a marine pollutant, or a hazardous waste regulated by EPA. If you have determined that a hazardous substance, marine pollutant, or hazardous waste is to be shipped (and it does not meet any other hazard class definition), then you have a Class 9 hazardous material by definition under DOT regulation.

As mentioned earlier, to determine the basic shipping description of the material, you must first determine the PSN of the material. This is the most difficult part of identifying the basic shipping description of the material. Once you have the PSN, then the hazard class,

identification number, and packing group associated with that PSN are read directly from the HMT. The basic shipping description is composed of the identification number, PSN, hazard class, and packing group of the material [49 CFR 172.202(b)]. These four items must appear in this order on the shipping papers for all air and water shipments and may be used in all other modes for domestic and international shipments. However, the previous sequence of PSN, hazard class, identification number, and packing group may continue to be used for highway and rail shipments until 1 January 2013 [49 CFR 171.14(e)].

The easiest way to determine a PSN for a material is to look at the HMT. If the technical name of the material appears on the table, then that is the PSN that you should use on the shipping paper. Once you locate the PSN for the material, by reading columns 3, 4, and 5, you can complete the basic shipping description.

Example A-1. Determining the PSN and basic shipping description.
A 55-gal drum of acetone is being sent from the manufacturer to a customer. What is the PSN and basic shipping description for this material?

Acetone is a technical name that appears in the HMT. Thus, the PSN for this material is Acetone (column 2). From reading columns 3, 4, and 5, you see that the basic shipping description of the material is "UN1090, Acetone, 3, PG II." (new sequence) or "Acetone, 3, UN1090, PG II" (previous sequence).

However, in many instances, hazardous wastes are mixtures of materials. When this occurs, you cannot use just one technical name. For a mixture or solution not identified specifically by name which is composed of a hazardous material and non-hazardous materials, you may add the qualifying words "mixture" or "solution," as appropriate, to the proper shipping name of the hazardous material. This cannot be done if the packaging specified in column 8 is inappropriate or when the PSN applies only to the pure or technical-grade material as denoted by the "+" in column 1 of the HMT. In addition, the hazard class, packing group, or subsidiary hazard of the mixture or solution may not be different from that specified for the entry. There can be no significant change in emergency measures.

Example A-2. Determining the basic shipping description for a waste mixture.
The laboratory has analyzed a 55-gallon drum of waste. Results of the analysis show that the waste is 80% acetone and 20% water. The initial boiling point is 100°F. The flash point of the waste is 20°F. What is the PSN and the basic shipping description of the waste?

Because this is waste, the first step is to determine the applicable EPA waste code. 40 CFR 261.21 defines ignitable wastes as those with a flash point of less than 140°F. The waste code from 40 CFR 261.21 is D001.

Next, you must determine the DOT requirements. First, it is necessary to determine the DOT characteristics of this waste. You can do this by determining its hazard class (HC) and packing group (PG). By looking at 49 CFR 173.121, you can see that the waste is flammable with an HC of 3 and has a PG of II due to flash point and boiling point. Because this is a mixture of a hazardous material (acetone) and a non-hazardous material (water), if the HC and PG for acetone are satisfied, then the PSN "Waste Acetone Solution" may be used. The word "solution" is optional. By checking the HMT, technical-grade acetone has an HC of 3 and a PG of II. Thus, your waste meets the definition of acetone, and the above PSN can be used. The basic shipping description is "UN1090, Waste acetone solution, 3, II" or "Waste acetone solution, 3, UN1090, II."

When it is not appropriate to list the material under the technical name or as a mixture, then it should be determined if the material can be appropriately described by a shipping name that tells what its intended application or "end-use" is. If so, then you should describe it that way according to its application, "use," or "end-use," such as "Coating solution" or "Extracts, flavoring liquid." In these cases, when there is a "G" in column 1 of the HMT, you may be required to use the technical names of at least two components most predominately contributing to the hazards of the mixture or solution along with the proper shipping name.

Example A-3. Choosing an "end-use" proper shipping name.
A 55-gal drum of methyl alcohol and ethyl alcohol is discovered. The flash point of the waste is 70°F and the boiling point is 100°F. What is the PSN and basic shipping description for this waste?

Because this is a waste, the first step is to determine the EPA waste code. 40 CFR 261.21 defines ignitable wastes as those wastes with a flash point of less than 140°F. So, the waste code for this mixture is D001.

Because both of these chemicals are alcohols, you should determine if a "use" or "end-use" name can be found. By searching the HMT for generic descriptions, you can see that an appropriate "end-use" name is "Alcohols, n.o.s." Thus, the PSN is "Alcohols, n.o.s." and the basic shipping description is "UN1987, Waste alcohols, n.o.s., 3, PGII (methanol, ethanol)" or "Waste alcohols, n.o.s., 3, UN 1987, PG II (methanol, ethanol).

You should describe a mixture or solution not identified in the HMT specifically by technical name, "use," or "end-use," or by using an appropriate generic shipping description (e.g., "Flammable liquid, n.o.s."). Select a proper shipping name from the generic descriptions corresponding to the specific hazard class, packing group, or subsidiary hazard, if any, for the material. When the generic description, as a proper shipping name, does not provide sufficient information for shipping papers and package markings, you may be required to use the technical name of one or more constituents that make the product a hazardous material along with the proper shipping name.

Example A-4. Determining generic proper shipping names.
A 55-gal drum of waste has been analyzed. Results show that the waste is 50% acetone and 50% toluene. The flash point is 10°F. The boiling point is 80°F. What is the PSN and basic shipping description?

Because this is waste, the first step is to determine the applicable EPA waste code. 40 CFR 261.21 defines ignitable wastes as those with a flash point of less than 140°F. So, the waste code from 40 CFR 261.21 would be D001. Because we have no other information about this waste, we cannot F-list it.

Determine the HC and PG for the waste. By looking at 49 CFR 173.121, you can see that the waste is flammable, with an HC of 3 and PG of I due to flash point and boiling point. Because this is a mixture of two hazardous materials, the PSN "Acetone" or "Toluene" cannot be used. You must determine another PSN from the HMT. Because the mixture is flammable, the PSN "Waste Flammable Liquids, n.o.s." can be used. Checking the HMT, you see that "Flammable Liquids, n.o.s." has an HC of 3 and a PG of I, II, or III. Thus, the basic shipping description for the waste would be " UN1993, Waste Flammable Liquids, n.o.s., 3, I (acetone, toluene)" or "Waste Flammable Liquids, n.o.s., 3, UN1993, I (acetone, toluene)."

In cases where the hazard classes of the chemicals in the mixture are not all the same, determining the PSN of the mixture will be more difficult. In the cases where there are multiple classes and the material is not specified by its technical name in column 2 of the HMT, the precedence table in 49 CFR 173.2a must be used (Table A-4). This table is to be used for mixtures of class 3, 4.1, 6.1, and 8 materials. Then, you can pick an appropriate shipping description (e.g., "Flammable liquid, corrosive n.o.s.").

Table A-4. Precedence of hazard table.

	Hazard Class and Packing Group														
	4.2	4.3	5.1 I*	5.1 II*	5.1 III*	6.1, I dermal	6.1, I oral	6.1, II	6.1, III	8, I liquid	8, I solid	8, II liquid	8, II solid	8, III liquid	8, III solid
3 I	—	4.3	—	—	—	3	3	3	3	3	**	3	**	3	**
3 II	—	4.3	—	—	—	3	3	3	3	8	**	3	**	3	**
3 III	—	4.3	—	—	—	6.1	6.1	6.1	3‡	8	**	8	**	3	**
4.1 II†	4.2	4.3	5.1	4.1	4.1	6.1	6.1	4.1	4.1	**	8	**	4.1	**	4.1
4.1 III†	4.2	4.3	5.1	4.1	4.1	6.1	6.1	6.1	4.1	**	8	**	8	**	4.1
4.2 II	—	4.3	5.1	4.2	4.2	6.1	6.1	4.2	4.2	8	8	4.2	4.2	4.2	4.2
4.2 III	—	4.3	5.1	5.1	4.2	6.1	6.1	6.1	4.2	8	8	8	8	4.2	4.2
4.3 I	—	—	5.1	4.3	4.3	6.1	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
4.3 II	—	—	5.1	4.3	4.3	6.1	4.3	4.3	4.3	8	8	8	4.3	4.3	4.3
4.3 III	—	—	5.1	5.1	4.3	6.1	6.1	6.1	4.3	8	8	8	8	4.3	4.3
5.1 I*		—	—	—	—	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
5.1 II*	—	—	—	—	—	6.1	5.1	5.1	5.1	8	8	8	5.1	5.1	5.1
5.1 III*	—	—	—	—	—	6.1	6.1	6.1	5.1	8	8	8	8	5.1	5.1
6.1 I. Dermal	—	—	—	—	—	—	—	—	—	8	6.1	6.1	6.1	6.1	6.1
6.1 I. Oral	—	—	—	—	—	—	—	—	—	8	6.1	6.1	6.1	6.1	6.1
6.1 II. Inhalation	—	—	—	—	—	—	—	—	—	8	6.1	6.1	6.1	6.1	6.1
6.1 II. Dermal	—	—	—	—	—	—	—	—	—	8	6.1	8	6.1	6.1	6.1
6.1 II. Oral	—	—	—	—	—	—	—	—	—	8	8	8	6.1	6.1	6.1
6.1 III	—	—	—	—	—	—	—	—	—	8	8	8	8	8	8

* See 40 CFR 173.127.
† Substances of Division 4.1 other than self-reactive substances.
** Denotes an impossible combination.
‡ For pesticides only, where a material has the hazards of Class 3, Packing Group III, and Division 6.1, Packing Group III, the primary hazard is Division 6.1, Packing Group III.

Example A-5. Using Table A-3 to determine a basic shipping description.

Analysis of a 55-gallon drum of waste shows that the mixture is 50% acetone, 30% potassium hydroxide, and 20% water. The flash point of the mixture is 50°F. The boiling point is 100°F, the pH is 13, and the material causes full destruction of skin tissue within an observation period of up to 14 days after an exposure time of 10 minutes. What is the basic shipping description for this mixture?

Because this is waste, the first step is to determine the applicable EPA waste code. 40 CFR 261.21 defines ignitable wastes as those with a flash point of less than 140°F. In addition, 40 CFR 261.22 defines corrosivity as pH less than or equal to 2 or greater than or equal to 12.5. So, the waste codes from 40 CFR 261.21 and 40 CFR 261.22 would be D001 and D002. Because we have no other information about this waste, we cannot F-list it.

Determine the HC and PG for the waste. By looking at 49 CFR 173.121, you can see that the waste is flammable, with an HC of 3 and a PG of II due to the flash point and boiling point of the mixture. By looking at the corrosive definition and packing group assignment in 49 CFR 173.137, you can further see that the waste also meets the definition of HC 8, PG II. Because this is a mixture of two hazardous materials of different hazard classes, the precedence table (Table A-4) in 49 CFR 173.2a(b) must be used to determine the PSN.

Looking at Table A-4, you will determine the point where 3, II, and 8, II intersect. This is 3. Therefore, the primary hazard is 3, and the secondary or subsidiary hazard is 8. The basic shipping description would be "UN2924, Waste Flammable Liquids, Corrosive, n.o.s. (acetone, potassium hydroxide), 3 (8), II" or "Waste Flammable Liquids, Corrosive, n.o.s. (acetone, potassium hydroxide), 3(8), UN2924, II." Remember, you must include both the primary and subsidiary hazard classes.

Proper shipping names are limited to those shown in the HMT in Roman type (not italics). Proper shipping names may be used in the singular or plural and in either uppercase or lowercase letters.

Words may be alternatively spelled in the same way as they appear in the International Civil Aviation Organization (ICAO) Technical Instructions or the International Maritime Dangerous Goods (IMDG) Code. For example "aluminum" may be spelled "aluminium" and "sulfur" may be spelled "sulphur." However, the word "inflammable" may not be used in place of the word "flammable."

Punctuation marks and words in italics are not part of the proper shipping name, but may be used in addition to the proper shipping name. The word "or" in italics indicates that terms in the sequence may be used as the proper shipping name, as appropriate.

The word “poison” or “poisonous” may be used interchangeably with the word “toxic” when only domestic transportation is involved. The abbreviation “n.o.i.” (not otherwise indicated) or “n.o.i.b.n.” (not otherwise indicated by name) may be used interchangeably with “n.o.s.” (not otherwise specified).

Except for hazardous wastes, when qualifying words are used as part of the proper shipping name, their sequence in the package markings and shipping paper description is optional.

When one entry references another entry by use of the word “see,” if both names are in Roman type, either name may be used as the proper shipping name (e.g., Ethyl alcohol, see Ethanol).

When a proper shipping name includes a concentration range as part of the shipping description, the actual concentration, if it is within the range stated, may be used in place of the concentration range. For example, an aqueous solution of hydrogen peroxide containing 30% peroxide may be described as “Hydrogen peroxide, aqueous solution with not less than 20% but not more than 40% hydrogen peroxide” or “Hydrogen peroxide, aqueous solution with 30% hydrogen peroxide.”

You can use the prefix “mono” in any shipping name, when it is appropriate. Thus, Iodine monochloride may be used interchangeably with Iodine chloride. In “Glycerol alpha-monochlorohydrin,” the term “mono” is a prefix to the term “chlorohydrin” and may be deleted.

If the word “Waste” is not included in the hazardous material description in column 2 of the HMT, you must include it preceding the proper shipping name for a federally regulated hazardous waste (e.g., Waste acetone).

If I am sending a sample of an unknown material to a lab for analysis, how do I choose a PSN?

A material for which the hazard class is uncertain and must be determined by testing, or a material that is a hazardous waste, may be assigned a tentative shipping name, hazard class, identification number, and packing group, based on your knowledge of the material. This means that if a sample is being sent to a laboratory and you suspect that it will meet a DOT hazard class, then it should be given a DOT tentative shipping name and all DOT requirements must be met. In addition, this provision is sometimes used when sending hazardous wastes to a TSDF. On occasion, hazardous waste may be sent to a TSDF with the arrangement that they will analyze and profile the waste. In these cases, you may assign a tentative shipping name. The word “sample” must appear as part of the proper shipping name or in association with the basic shipping description. To use this provision full compliance with the requirements of 49 CFR 172.101(c)(11) must be met, including the requirement that the net weight of the sample package cannot exceed 5.5 pounds. Samples of hazardous waste sent to a TSDF for profiling are not sent using a hazardous waste manifest. Samples are shipped on a DOT BoL.

What is a hazardous substance?

A hazardous substance is defined in 49 CFR 171.8 as a material, including its mixtures and solutions, that:

- Is listed in Appendix A to 49 CFR 172.101 (HMT);
- Is in a quantity in one package, which equals or exceeds the reportable quantity shown in Appendix A; and
- When in mixture or solution meets the parameters of Table A-5.

Table A-5. Hazardous substance concentration by weight table.

RQ pounds (kg)	Concentration by weight	
	Percent	ppm
5000 (2270)	10	100,000
1000 (454)	2	20,000
100 (45.4)	0.2	2,000
10 (4.54)	0.02	200
1 (0.454)	0.002	20

The term hazardous substance does not include petroleum, including crude oil or any fraction thereof that is not otherwise specifically listed or designated as a hazardous substance in Appendix A of 49 CFR 172.101, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

To be a hazardous substance by DOT definition, the hazardous material must be listed in Appendix A to 49 CFR 172.101, be in a quantity per package equal to or greater than that shown as the reportable quantity (RQ), and meet the parameters of Table A-5.

Example A-6. Determining the RQ for a hazardous material.

You are preparing to transport 20 55-gal drums of pure acetone. Do you have an RQ of acetone?

Appendix A to 49 CFR 172.101 shows that the RQ for acetone is 5000 lb (2270 kg). Because the drum only contains about 50 gallons at 6.5 lb/gal (the weight of acetone per gallon) = 325 lb, you do not have an RQ. The RQ is the amount per container, not per shipment.

Note that if you have a mixture of hazardous materials, it is the concentration by weight of at least one of the components that must exceed the corresponding RQ for that material.

Example A-7. Determining the RQ for a mixture of hazardous materials.

You must determine whether or not a hazardous substance is being transported. The mixture is 50% acetone and 50% trichloroethene to be shipped in a 55-gallon drum.

The RQ for acetone from Appendix A is 5000 lb (2270 kg). The RQ for trichloroethene is 100 lb (45.4 kg). Because a drum weighs approximately 400 lb, a 50% mixture has approximately 200 lb of acetone and 200 lb of trichloroethene. Because the RQ for trichloroethene has been exceeded, the material must be shipped as a hazardous substance, RQ.

For RCRA hazardous wastes, the RQs are presented in the appendix at the end of the list. If you have assigned a waste code, there is no need to calculate by weight the components in the mixture, because, typically, not all components of the waste are known.

Example A-8. Determining an RQ for a hazardous waste.

One 55-gal drum of a waste contaminated acetone solution is to be sent offsite for incineration. The mixture has a flash point of 0°F.

The waste code is D001. The RQ for D001 is 100 lb (45.4 kg). Although the RQ for acetone is 5000 lb (2270 kg), the contaminated acetone solution is a hazardous waste and probably contaminated with other constituents; therefore, as a waste, the RQ is only 100 lb.

If the material being shipped does not meet any hazard class but is a hazardous substance by DOT definition, then you can use the PSN "Environmentally Hazardous Substances, solid or liquid, n.o.s."

You must enter the letters RQ on the shipping paper, either before or after the basic description for each hazardous substance (e.g., "RQ, Allyl alcohol, 6.1, UN 1098, I"; or "Environmentally hazardous substance, solid, n.o.s., 9, UN 3077, III, RQ (Adipic acid)").

What is a Marine Pollutant?

A Marine Pollutant is a material that is listed in Appendix B of 49 CFR 172.101 (also see 49 CFR 171.4) and, when in a solution or mixture of one or more marine pollutants, is packaged in a concentration that equals or exceeds:

- Ten percent by weight of the solution or mixture for materials listed in Appendix B.
- One percent by weight of the solution or mixture for materials that are identified as severe marine pollutants in Appendix B.

For bulk shipments in all modes and non-bulk shipments by vessel, 49 CFR 172.203 requires that you enter the words "Marine Pollutant" along with the basic description on the shipping papers. In addition, 49 CFR 172.203 requires that, if the PSN for a material that is a marine pollutant does not identify by name the component that makes the material a marine pollutant, the name of the component must appear in parentheses in association with the basic shipping description. Where two or more components are present, at least two names must appear in association with the basic shipping description.

For materials that meet no other hazard class, but that do meet the definition of a marine pollutant, you can use the PSN "Environmentally hazardous substances, solid or liquid, n.o.s."

Are there any poisonous provisions?

DOT defines something as poisonous if it is a material (other than a gas) that is known to be so toxic to humans as to be a hazard to health during transportation, or in the absence of adequate data on human toxicity is presumed to be toxic to humans. Poisons are also irritating materials (with properties similar to tear gas) that cause extreme irritation, especially in confined spaces.

For materials that are poisonous by inhalation, you must enter the words "Poison-Inhalation Hazard" or "Toxic-Inhalation Hazard" and the words "Zone A," "Zone B," "Zone C," or "Zone D," for gases or "Zone A" or "Zone B" for liquids, as appropriate, on the shipping paper immediately following the shipping description. The words "Poison" or "Toxic" need not be repeated if they otherwise appear in the shipping description.

What do I do with the basic shipping description?

The basic shipping description derived from the HMT will be placed in Item 9b of the hazardous waste manifest.

You must include the following information on the shipping papers, as applicable:

(1) Proper shipping name from column 2 of the HMT (including technical names for n.o.s. entries). (Place in Item 9b of the manifest.)

(2) Primary and subsidiary hazard classes from column 3 of the HMT. (Place in Item 9b of the manifest.)

(3) Identification number from column 4 of the HMT. (Place in Item 9b of the manifest.)

(4) Packaging group from column 5 of the HMT. (Place in Item 9b of the manifest.)

(5) Total quantity of materials covered by the description. (Place in Items 11 and 12 of the manifest.)

(6) Number and type of packages. (Place in Item 10 of the manifest.)

(7) Shipper's certification as found in 49 CFR 172.204(a). (Item 15 of the manifest.)

(8) Additional requirements as appropriate (49 CFR 172.203).

(*a*) Special permits – enter DOT-SP followed by the special permit number.

(*b*) Limited quantities – enter "Limited Quantity" or "LTD QTY" if shipping under the authorizations of column 8a of the HMT.

(*c*) Hazardous substances – enter "RQ" where the container holds a quantity of material meeting the definition of a DOT hazardous substance.

(*d*) Radioactive materials – enter the radionuclide, physical and chemical form, activity, category of label, transport index, fissile or fissile-excepted, criticality safety index, DOE package, foreign-made packages, "Exclusive Use Shipment"(if applicable).

(*e*) Empty packaging – enter the words "Residue: Last Contained" before the basic shipping description for containers that contained a DOT hazardous material, but are not empty by DOT standards.

(*f*) Transported by air – enter a statement that the shipment is within the limitations prescribed for either passenger and cargo aircraft, or cargo aircraft only must be entered on shipping papers.

(*g*) Rail shipments – enter the reporting mark and number on the shipping paper when number is displayed on the rail car, freight containers, transport vehicle, or portable tank.

(*h*) "Marine Pollutants" – enter these words if the material being shipped meets the definition of a marine pollutant.

(*i*) Elevated temperature materials – enter the word "HOT" preceding the PSN of the material if the liquid material meets the definition of an elevated temperature material and that fact is not already disclosed in the PSN.

(*j*) Poisonous materials – enter the words "Poison-Inhalation Hazard" or "Toxic-Inhalation Hazard" and the words "Zone A," "Zone B," "Zone C," or "Zone D" for gases, or "Zone A" or "Zone B" for liquids, as appropriate, on the shipping paper immediately following the shipping description. The words "Poison" or "Toxic" need not be repeated if they otherwise appear in the shipping description.

(*k*) "Sample" – enter the word "SAMPLE" in association with the basic shipping description when a sample under the provisions of 49 CFR 172.101(c)(11).

(9) Items 1-4 – The basic shipping description is composed of the identification number, PSN, hazard class, and packing group of the material. These four items must appear in this order on the shipping papers for all air and vessel shipments and may be used for all other modes or the alternate sequence of PSN, hazard class, identification number, and packing group may be used for rail and highway. On 1 January 2013, it will be mandatory for rail and highway shipments to use the first basic shipping description sequence.

Am I done with the manifest yet?

Once you have completed Item 9b, the tough work is over. In Item 10 you provide the number and type of containers. Item 11 calls for the total quantity and Item 12 references the units of measure corresponding to Item 11. Item 13 is a list of your waste codes as discussed previously. Aside from the ERG number being placed in Item 14, you can put any additional information relating to the shipment. The remainder of the items are the certifications for the generator, transporter, and TSDF.

What paperwork actually accompanies the shipment?

There are typically three documents that must accompany all shipments of hazardous wastes: a manifest, a land disposal restriction (LDR) notification, and a waste profile sheet (waste analysis sheet).

The LDR documentation and certification requirements are found in the EPA regulations in 40 CFR 268.7. In general terms, the following items are to be included in the notification:

- EPA hazardous waste number.
- Constituents of concern.
- Treatability group.
- Regulatory subcategory.
- Corresponding manifest number.
- Waste analysis.
- Certification.

In practice, there is a waste profile sheet or a lab analysis accompanying the manifest and LDR documentation. The contractor will get a waste profile form from the TSDF. Sometimes the TSDF will request that the waste profile or waste analysis be submitted by the generator before the TSDF gives permission for the waste to be shipped so the waste profile may not accompany the actual shipment. Each disposal facility has its own version of the profile. There is no required EPA form or format, just required EPA information as discussed above.

The LDR documentation is required to be sent with each initial shipment of waste to a TSDF. An LDR notification form is not required to be sent for subsequent shipments of the same waste streams to the same facility. However, it is recommended that if an LDR form does not

accompany each shipment that a note be placed on the manifest stating that LDR notification was previously provided with the initial shipment of the waste stream to the TSDF and indicate that manifest number.

In addition, there are provisions in the regulations that allow the generator to ship his waste offsite and allow the storage or treatment facility to make the determination whether or not treatment is required on the waste. If the generator chooses not to make the determination of whether his waste must be treated, with the initial shipment of the waste to each treatment or storage facility, the generator must send a one-time notification to each treatment or storage facility receiving the waste, and place a copy in his files as per 40 CFR 268.7(a)(2). The notice must include the EPA waste codes, the manifest number of the first shipment, the constituents of concern, the treatability group, the subcategory, the waste analysis, and a certification. The notification must also include the statement "This hazardous waste may or may not be subject to the LDR treatment standards. The treatment facility must make the determination." Although this option is available in the federal regulations, it should be noted that the generator should consider various ramifications when allowing the treatment facility to make the decision, essentially on behalf of the generator; such as additional costs if the waste does not actually need treatment but the facility treats, or costs associated with future liabilities where the facility does not treat the waste and there is a release from the disposal facility in the future. A decision to allow the treatment or storage facility to make this determination should be very carefully weighted.

What is the land ban?

The terms "land ban" and "land disposal restrictions" mean the same thing. The *Hazardous and Solid Waste Amendments* (HSWA) to RCRA include specific provisions restricting the land disposal of hazardous wastes. The purpose of these provisions is to minimize the potential of future risk to human health and the environment by requiring that hazardous wastes be treated before they are disposed of into or on the land. The definition of "land disposal" under 40 CFR 268.2(c) of RCRA includes, but is not limited to, "any placement of hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, underground mine or cave, and concrete bunker or vault."

EPA has set either concentration-based levels or technology-based standards for each waste stream. A concentration-based level is a numerical standard that must be met prior to land disposal. Any method of treatment can be applied to attain the concentration-based level. When a technology-based standard is established for a particular waste, that treatment technology must be used no matter what the concentration is of the hazardous constituents in the waste. Once the waste has been treated, the residues can be disposed of on or into the land, as appropriate.

In addition, EPA has finalized alternative treatment standards for debris and for soils. The alternative treatment standards for debris are found in 40 CFR 268.45. EPA has regulated debris under the contained-in rule. Once the debris is treated with one of the destruction or extraction technologies in the regulations, it can be disposed of into a non-hazardous-waste landfill without

further analysis or treatment. Debris contaminated with a listed hazardous waste that is treated with an immobilization technology still needs to be disposed of in a hazardous waste landfill. The residues from any of the treatment processes need to be managed in accordance with 40 CFR 268.45. For contaminated soils, the alternative LDR standards are given in 40 CFR 268.49.

Therefore, for almost all waste streams being sent offsite on a manifest, EPA requires the generator to indicate to the TSDF whether the waste can be directly land disposed or if the waste needs further treatment prior to land disposal. This is done in the LDR notification form that accompanies the manifest.

After all the paperwork is complete, what's next?

After you have determined the basic shipping description and while you are preparing the manifest, it is time to start packaging, labeling, and marking the waste containers.

How do I choose the correct package for my hazardous materials?

A package means the packaging plus its contents. Packaging means a receptacle and any other components or materials necessary for it to properly contain the waste to conform with the minimum packaging requirements of 49 CFR 173. Packages may be bulk or non-bulk. A bulk packaging is a transport vehicle or freight container, other than a vessel or a barge, in which hazardous materials are loaded with no intermediate form of containment, and which has:

- A maximum capacity greater than 450 L (119 gal) as a receptacle for a liquid.
- A maximum net mass greater than 400 kg (882 lb) and a maximum capacity greater than 450 L (119 gal) as a receptacle for a solid.
- A water capacity greater than 454 kg (1000 lb) as a receptacle for a gas.

A non-bulk package is a package that does not meet the bulk package criteria stated above.

There are two packaging types: single and combination. Single packaging is just that, only one required container. Combination packaging has one or more required inner packagings, as well as a required outside container.

The packaging authorizations are found in columns 8A, 8B, and 8C of the HMT. Note that columns 8A, 8B, and 8C refer you to 49 CFR 173. To determine the proper packaging, it is necessary for you to first review the HMT column (8A, 8B, or 8C) associated with the PSN. Column 8A gives exceptions to packaging requirements, such as limited quantities. Column 8B tells you non-bulk packaging requirements and refers you to a citation, such as 202. Viewing the column heading, you see that you need to refer to 49 CFR 173.202. Reviewing the appropriate CFR section provides you with the appropriate packaging specifications. Column 8C tells you what appropriate bulk shipping containers go with the PSN.

Example A-9. Determining the proper packaging.
Is a fiberboard box an approved packaging for benzidine?

By looking up the PSN "benzidine," you see from column 8B that, for non-bulk packages, section 173.212 gives the approved packages. Turning to section 173.212, you see that a fiberboard box is the proper outer packaging, with an inner packaging of plastic or glass receptacles.

There are two applicable exceptions: limited quantity (HMT-column 8A) and small quantity (§ 173.4).

Limited quantity is the maximum amount of a hazardous material for which there is a specific labeling, packaging, and placarding exception:

- Maximum allowed in the package is 66 lb (30 kg) gross weight.
- Package must be marked with the UN/NA identification (ID) number and placed within a square-on-point border.
- Shipping papers must accompany shipment and indicate a LTD QTY.
- Shipments by aircraft may not allow all the exceptions (e.g., labeling).

Example A-10. Determining the proper non-bulk packaging.
What is one approved non-bulk package for 1/2 L (0.13 gal) of acetone?

For acetone, the HC is 3 and PG II. The packaging exceptions (HMT-column 8A) would be found in 49 CFR 173.150. The non-bulk packaging requirements (HMT-column 8B) are found in 49 CFR 173.202. Because only 1/2 L of acetone is to be shipped, the package can be shipped either as a limited quantity or a non-bulk package. The shipment can go as a limited quantity as specified in 49 CFR 173.150(b)(2) for the associated HC and PG. The non-bulk packaging requirements are found in 49 CFR 173.202(b) or (c). The 1/2 L can be sent in a fiberboard box 4G with an inner glass receptacle not exceeding 66 lb (30 kg) gross weight.

Limited quantities of hazardous materials are excepted from labeling, placarding, package specification requirements, and performance-oriented packaging standards (POPS) test requirements, but must have shipping papers and the appropriate markings on the package.

Not all materials are authorized to be shipped as a limited quantity. Column 8A should be consulted when determining whether or not you can ship a material as a limited quantity, and whether it is permissible to take the labeling, packaging, and placarding exceptions.

Both package manufacturers and shippers have the responsibility to ensure the structural integrity of packages. Your responsibilities as a shipper are found in 49 CFR 173.22, 173.24, and 173.24a. You must ensure:

- Material has been classed and described properly, placed in an authorized packaging, and the packaging has been manufactured, assembled, and marked in accordance with the HMR.
- The package will not break open or leak under normal transportation conditions.

Are there any exceptions for really, really small quantities of HAZMAT?

Small quantities of class 3, 4.1, 4.2 (PG II & III), 4.3 (PG II & III), 5.1, 5.2, 6.1, 7, 8, and 9 materials are not subject to any other HAZMAT requirements when:

- Maximum quantity per inner receptacle is less than or equal to 30 mL for other than division 6.1, PG I, Hazard Zones A & B materials, or less than or equal to 30 g for solids.
- Inner package is securely packed in strong outside packaging.
- Inner receptacles are not liquid full.
- Closure is held securely in place.
- Package is cushioned as required.
- Free drop test has been done.
- Materials do not violate 49 CFR 173.21.
- Maximum allowed in complete package is 64 lb gross weight.
- Shipper certifies that packages conform to conditions and limitations specified in 49 CFR 173.4.

A complete set of requirements can be found in 49 CFR 173.4.

How do I mark containers?

The following markings are required on non-bulk packages:

- The PSN found in column 2 of the HMT on the outside package. For generic shipping names, technical names must be included in parentheses.
- The corresponding UN or NA identification number found in column 3 of the HMT.
- The name and address of the consignee or the consignor (shipper).
- Other markings (specified below).

The markings identified above are required for all non-bulk packages. Certain packages may require additional markings. You must be sure to only use these markings as required for the particular circumstance.

Large quantities of a single hazardous material in non-bulk packages

A transport vehicle or freight container containing only a single hazardous material in non-bulk packages must be marked, on each side and each end with the identification number of the hazardous material when the aggregate gross weight of the hazardous material is 4000 kg (8820 lb) or more and all of the hazardous material is loaded at one loading facility. The transport vehicle or freight container contains no other material, hazardous or otherwise.

Exemption packaging

If the package is authorized by an exemption or special permit, mark the outside of the container "DOT-SP," followed by the special permit number assigned as per 49 CFR 172.301(c).

ORM-D

Non-bulk packages of ORM-D materials must be marked on at least one end or one side with the PSN and the ORM-D designation in a rectangle as prescribed in 49 CFR 172.316(a).

Class 1 explosives

In addition to the other required markings, packages containing class 1 explosives must be marked with an "EX-number" for each substance, article, and device in the container as per 49 CFR 172.320.

Non-bulk combination packages

Non-bulk combination packages having inner packagings containing liquid hazardous materials must be marked on two opposite vertical sides with orientation markings as specified in 49 CFR 172.312.

Class 7 radioactive

Packages of Class 7 materials must be marked with the gross weight if they exceed 110 lb (50 kg). Each industrial, Type A, Type B(U), or Type B(M) package must be marked on the outside with the package type: "TYPE IP-1," "TYPE IP-2," "TYPE IP-3," "TYPE A," "TYPE B(U)," or "TYPE B(M)". Each IP-1, IP-2, IP-3, or Type A package must be marked with the international vehicle registration code of the country of origin of the design. The international vehicle registration code for packages designed by a U.S. company or agency is the symbol "USA." Each Type B(U) or Type B(M) package must be marked with a radiation symbol (trefoil) as specified in Appendix B of this part. These requirements are specified in 49 CFR 172.310.

Inhalation hazard

Non-bulk and bulk packages containing materials that are poisonous by inhalation must be marked with the words "Inhalation Hazard". The marking is required on two opposing sides of bulk packages and has size requirements. Special provisions 1, 2, 3, 4, 5, 6, or 13 of the HMT identify poisonous by inhalation hazards (PIHs). These requirements are specified in 49 CFR 172.313.

Marine pollutant

The marine pollutant marking must be used as required in 49 CFR 172.322 for bulk packages shipped by any mode and on non-bulk packages shipped by vessel. The size and number of markings is also specified in this section. Transport vehicles containing bulk packages must be marked unless they meet one of the exceptions found in paragraph 172.322(d).

Overpack

For each overpack used to enclose "Specification Packages" and for any packages where markings are not completely visible, the overpack must be marked with the word "OVERPACK" as per 49 CFR 173.25(a)(4).

Keep away from heat

For transportation by aircraft, each package containing self-reactive substances of Division 4.1 or organic peroxides of Division 5.2 must be marked with the KEEP AWAY FROM HEAT handling mark as specified in 49 CFR 172.317.

Hazardous substances

If the non-bulk material is a regulated hazardous substance, the letters "RQ" must be marked on each non-bulk package along with the PSN as per 49 CFR 172.324. Packaged and unpackaged shipments of Class 7 low specific activity and surface-contaminated objects require the RQ marking on the bulk and non-bulk packaging per 49 CFR 173.427.

Hazardous wastes

The proper shipping name for a hazardous waste must include the word "Waste" unless the package bears the EPA marking prescribed in 40 CFR 262.32. EPA regulations require that packages of hazardous waste be marked with the EPA warning, manifest document number, and generator information. Typically, a yellow hazardous waste 'sticker' has all the required marking information.

Infectious substances

A bulk packaging containing a regulated medical waste must be marked with a BIOHAZARD marking conforming to 29 CFR 1910.1030(g)(1)(i) on two opposing sides or two ends other than the bottom if the packaging has a capacity of less than 3785 L (1000 gal) and on each end and each side if the packaging has a capacity of 3785 L (1000 gal) or more. For a bulk packaging contained in or on a transport vehicle or freight container, if the BIOHAZARD marking on the bulk packaging is not visible, the transport vehicle or freight container must be marked on each side and each end.

Specification packaging markings

A manufacturer must mark every non-bulk packaging that is represented as manufactured to meet a UN standard with the marks specified in 49 CFR 178 Subpart L. The markings must be durable, legible, and placed in a location and of such a size relative to the packaging that it is readily visible and in accordance with 49 CFR 178.3. A POPS marking may be applied in a single line or in multiple lines provided the correct sequence is used.

If non-bulk specification packaging is required by the HMT, the package must be marked with the specification marking similar to that shown in Figure A-5. The shipper is responsible for selecting the correct packaging for the intended shipment of hazardous material. The HMT (columns 8B and 8C) will determine the types of packaging authorized for the specific hazardous material but the shipper is responsible for selection of the manufacturer's product that meets the requirements. As previously stated, columns 8A, 8B, and 8C will provide a three-digit number and it is understood (see top of HMT) that this will have the prefix 173.***.
Review of the appropriate CFR section will give you the appropriate packaging specifications.

Example A-11. Determining the proper packaging.
Is a fiberboard box an approved packaging for benzidine?

By looking up the PSN "Benzidine," you will see from column 8B that, for non-bulk packages, section 173.212 gives the approved packages. Turning to section 173.212, you will see that a fiberboard box (4G) is considered proper outer packaging with an inner packaging of plastic or glass receptacles. The package identification code is 4G (see Figure A-5).

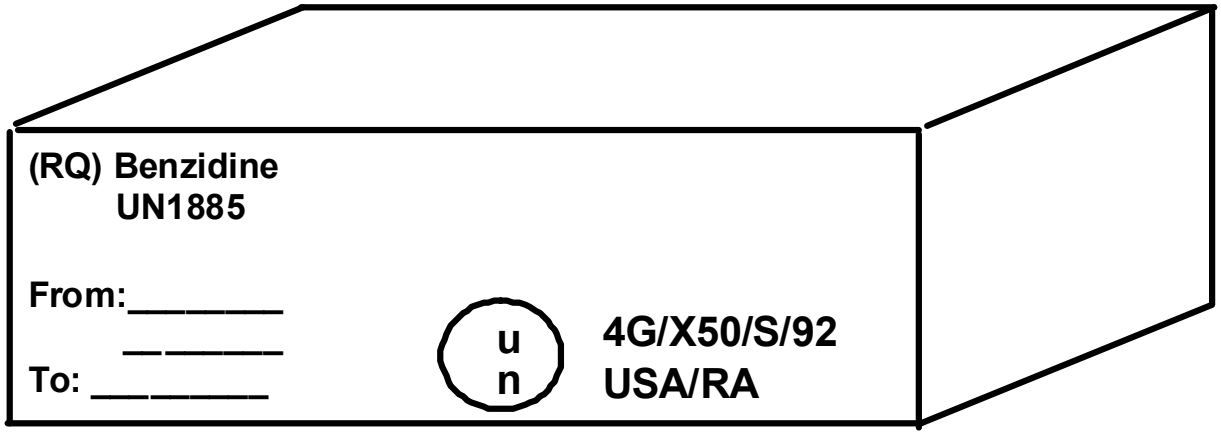


Figure A-5. Marking the package.

Now that you have determined the proper outer packaging, the UN marking must be determined. The POPS markings are found in 49 CFR 178, Subpart L. 49 CFR 178.503 specifically tells you about POPS marking requirements and methodology.

As specified in 49 CFR 178.503, the package must be marked with the following information in the presented sequence:

(1) UN symbol.

(2) Packaging identification code designating the type of package and the material of construction.

(3) A letter designating the performance standard that the packaging was successfully tested to:

X – for packages meeting PG I, II, III tests;
Y – for packages meeting PG II and III tests;
Z – for packages meeting PG III tests only.

(4) A designation of the specific gravity or mass in kilograms for which the package has been tested.

(5) For single and composite packagings intended to contain liquids, the test pressure in kilopascals rounded to the nearest 10 kPa of the hydrostatic pressure test that the packaging design type has successfully passed, and for packages intended to contain solids or inner packagings, the letter "S."

(6) The last two digits of the year the package was manufactured.

(7) The letters "USA" indicating that the packaging was marked pursuant to these standards.

(8) The symbol of the manufacturer.

These markings are placed on the package by the manufacturer who certifies that the package has been tested in accordance with the performance-oriented packaging requirements of 49 CFR 178. Marking of reconditioned packaging (e.g., drum) requires that the reconditioner mark the country in which the reconditioning occurred in and the last two digits of the year the package

was reconditioned. The reconditioner must also mark the package with an "R" for reconditioned and, if the package successfully passed a leak test, an "L" in accordance with section 178.503(c).

Example A-12. Determining UN specification markings.

What would be the appropriate UN marking on the fiberboard box of benzidine?

u
n

4G/X50/S/02
USA/RA

The UN symbol is present specifying that the package was manufactured to meet UN specifications. The Packaging identification code is a "4," which means a box and a "G," which means fiberboard as presented in 49 CFR 178.502. The performance standard that the packaging was successfully tested to was an "X" for packages meeting PG I, II, and III tests. Column 5 in the HMT indicates that benzidine is a PG II material and it is permissible to select an "X" or "Y" type packaging. Because there is an "S," this package is intended to contain solids or inner packages that may contain liquids. Because the package is intended to contain solids, 50 kg is the mass for which the package has been tested. The package was manufactured in 2002 in the USA by "RA."

Bulk packaging is a package, including a transport vehicle or freight container other than a vessel or a barge in which hazardous materials are loaded with no intermediate form of containment and that has a:

- Maximum capacity greater than 450 L (119 gal) as a receptacle for a liquid.
- Maximum net mass greater than 400 kg (882 lb) and a maximum capacity greater than 450 L (119 gal) as a receptacle for a solid.
- Water capacity greater than 454 kg (1000 lb) as a receptacle for a gas.

Identification number markings must be displayed on orange rectangular panels or placards or on white square-on-point configurations.

When transporting materials in bulk packages:

- Mark each end and each side of packages holding 1000 gal (3785 L) or more with ID number. Mark two opposing sides if it holds less than 1000 gal.
- Mark two opposing sides of bulk packages containing Poison Inhalation Hazards (PIHs) with ID number.
- Mark each side and each end with marine pollutant marking if the package holds 1000 gal or more, two opposing sides if it holds less than 1000 gal.
- For portable tanks, include PSN, owner's name, and ID number on all four sides.
- For cargo tanks, mark all four sides with ID number.

- For tank cars, mark ID number on all four sides and two sides with certain PSNs.
- For multi-unit tank cars, mark PSN on opposing sides, ID number on opposing sides, and mark the vehicle itself with ID number on all four sides.

How do I label containers?

In general, there are three types of labels:

- The first two types of labels are the primary and subsidiary hazard labels. These labels are diamond shaped with the class or division number that specifies the primary and subsidiary hazard of the material. When primary and subsidiary labels are required, they must be displayed next to each other (within 6 inches).

- The third type of label is the handling labels. Typically not diamond shaped. Includes labels such as "Empty," and "Cargo Aircraft Only."

The DOT regulations are very specific about the size and color of the appropriate labels. The requirements for labels are found in 49 CFR 172.400.

Once you have determined the PSN for a hazardous material, you should look at column 6 of the HMT. Column 6 provides a "Label Code." "Label Codes" are found in 49 CFR 172.400. In some instances, there will be more than one label requirement. For example, if there are two labels listed, the first listed is the primary hazard label, and the second is the subsidiary hazard label. All labels must be placed close to each other, yet not overlap physically. In the example below, butyronitrile is both a flammable liquid and a poison, requiring a primary (3) and subsidiary (6) hazard label. Column 6 is also your reminder that when writing the basic shipping description, if you have a subsidiary hazard, then this hazard class or division needs to be included in brackets immediately following the primary hazard class or division.

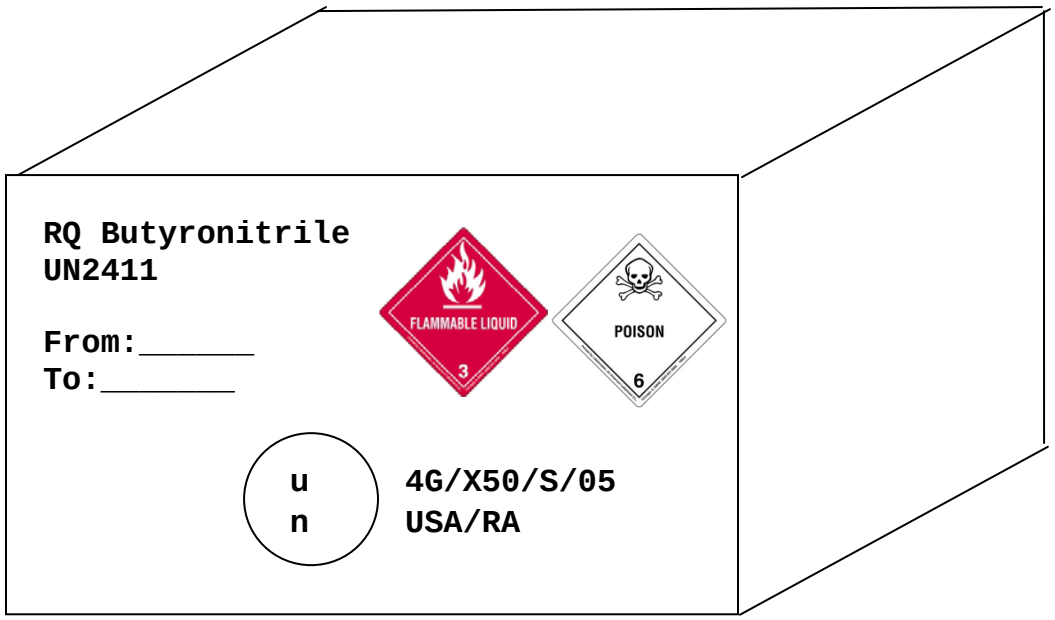
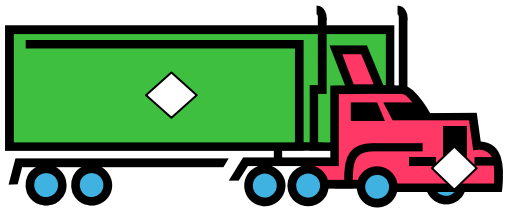


Figure A-6. Label example.

Normally, only a single label of each type is needed on a package; however, duplicate labels must be displayed on at least two sides or two ends when:

- Package or overpack has a volume of 1.8 m^3 (64 ft^3) or more.
- Non-bulk package contains radioactive material.
- Portable tank has a volume of less than 1000 gal (3785 L).
- Freight container has a volume of 1.8 m^3 or more, but less than 18 m^3 (640 ft^3).

How do I placard the transport vehicle?



Each bulk packaging, freight container, unit load device, transport vehicle or rail car containing any quantity of a hazardous material must be placarded on each side and each end with the applicable placards.

It is your responsibility as a shipper to provide hazardous material placards with the shipment. Placards should be offered for ANY amount of hazardous materials with the exception of:

- Infectious materials.
- Other regulated material consumer commodity (ORM-D).
- Limited quantity identified on shipping papers.
- Small quantities marked as such.
- Combustible liquids in non-bulk packagings.
- Empty non-bulk packagings.

To determine which placards to offer to the transporter, you must determine the HC associated with the PSN to be used. Once you have determined the HC, Tables 1 and 2 of 49 CFR 172.504 specify the placard requirements:

- Placards must be provided for any amount of materials associated with the hazard classes found in Table 1 of 49 CFR 172.504.
- Placards are only required for Table 2 (of 49 CFR 172.504) materials when the aggregate gross weight of Table 2 materials is over 1000 lb (454 kg). The placards specified in Table 2 must be offered. If the aggregate gross weight of the materials with hazard classes on Table 2 is less than 1001 lb, Table 2 placards are not required, but may be displayed.

A DANGEROUS placard may be displayed by the transporter for materials whose hazard class appears in Table 2 unless 2205 lb (1000 kg) or more of one category of material is loaded at one facility. You, as shipper, should NEVER offer DANGEROUS placards. The transporter may change to the DANGEROUS placard, depending on the hazard class of all the materials loaded at different locations. However, the transporter cannot use the DANGEROUS placard for any amount of Table 1 materials or when 2205 lbs or more of one HC of a Table 2 material is loaded at one facility.

You should always offer four placards to the transporter. It is also a good management practice to mark on the shipping paper the type and quantity of placards offered, or to take a photo of the placarded vehicle leaving the site.

Materials with subsidiary hazards of POISON INHALATION and DANGEROUS WHEN WET must be placarded for those hazards in addition to the primary hazard. A subsidiary hazard placard of CORROSIVE is required on fissile or low specific activity uranium hexafluoride as well.

Example A-13. Determining the proper placard.
You want to ship 900 lb (410 kg) of allyl alcohol in non-bulk containers. What placards are required?

Allyl alcohol has an HC of 6.1 and a PG of I and is a poison inhalation hazard. By looking at Table 1 in 49 CFR 172.504, you determine that POISON INHALATION HAZARD placards are required for any amount of this hazardous material. The shipper offers four PIH placards to the transporter. Because this is a Table 1 material, the DANGEROUS placard cannot be substituted for the PIH placard.

Example A-14. Determining the proper placards for a shipment of different hazardous materials.

What placards should you use when loading 500 lb (227 kg) of acetone 3, II and 200 lb (91 kg) of allyl alcohol at the same facility?

As discussed above, any amount of allyl alcohol must be placarded POISON INHALATION HAZARD. Because acetone is flammable, you should also offer FLAMMABLE placards. But because less than 1001 lb (454 kg) aggregate gross weight of Table 2 materials are being offered, the transporter would not have to placard the vehicle FLAMMABLE.

Example A-15. Determining the correct placards for the shipment.

If 5000 lb (1364 kg) of acetone and 3000 lb of formic acid were loaded at one facility, what placards should you offer the transporter?

Because more than 1000 lb (454 kg) aggregate gross weight of Table 2 materials were loaded at one facility, you must provide both FLAMMABLE and CORROSIVE placards. Because more than 2205 lb (1000 kg) of one HC was loaded at one facility, the transporter is not allowed to display the DANGEROUS instead of the FLAMMABLE and CORROSIVE placards. Both placards must be displayed on all four sides of the transport vehicle.

Example A-16. Correct use of the DANGEROUS placard.

Could the transporter use a DANGEROUS placard when 1500 lb (2727 kg) of acetone was loaded at one facility and 1200 lb (545 kg) of acetone and 1200 lb (545 kg) of formic acid were loaded at another facility?

Yes, the transporter could display the DANGEROUS placard. Although the aggregate gross weight of Table 2 materials on the transport vehicle is 3900 lb, the transporter did not load more than 2205 lb of any one hazard class at one facility.

Figure A-7 depicts the procedure for choosing placards.

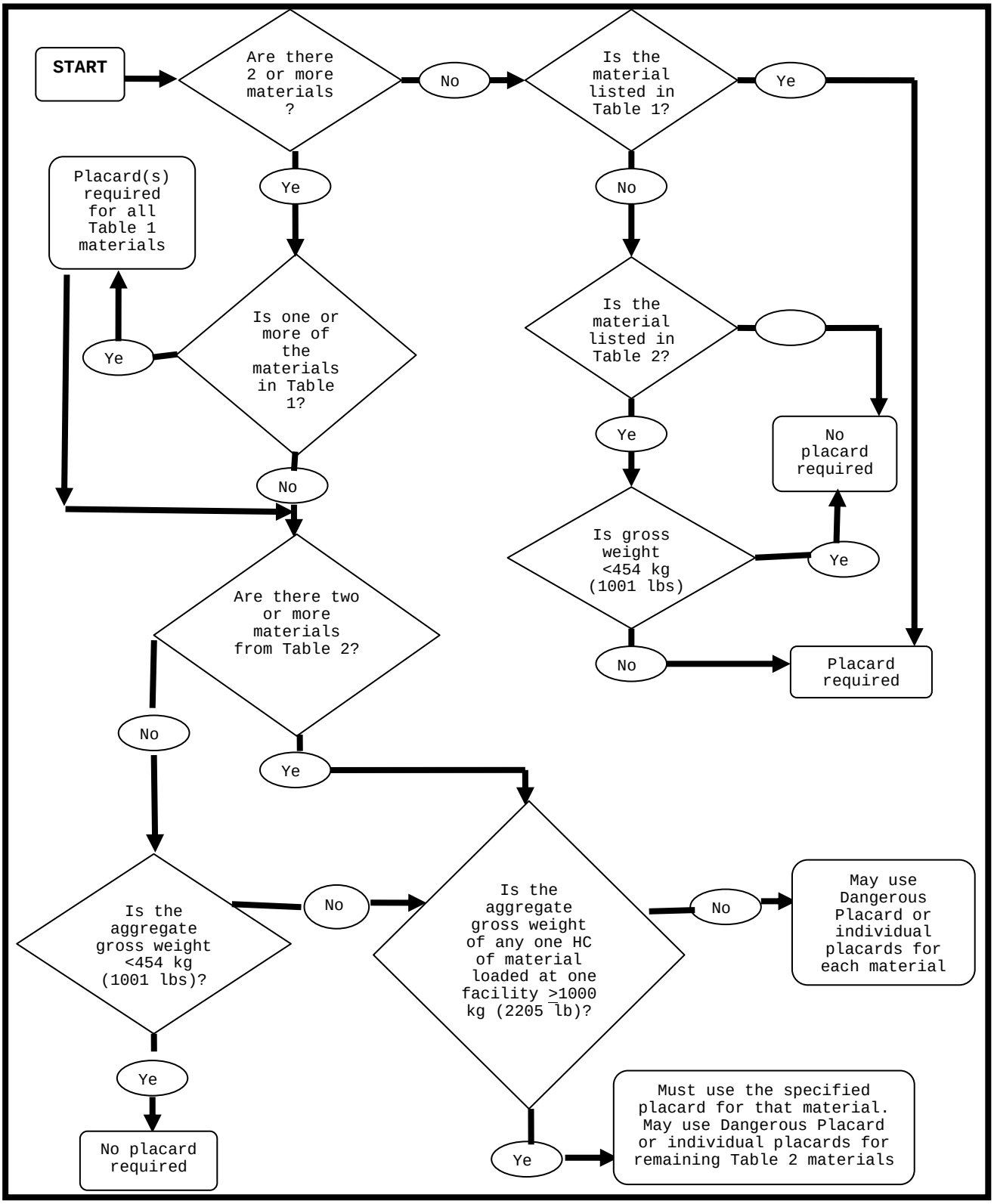


Figure A-7. Placarding flowchart.

What is so special about asbestos?

Asbestos is regulated under DOT as a hazardous material. Furthermore, EPA regulates the transportation and disposal of asbestos in 40 CFR 61. EPA regulates both friable asbestos and asbestos that is likely to become friable. DOT only regulates friable asbestos. There is a DOT exclusion provided by 49 CFR 172.102(c)(1), Special Provision 156, which states, "asbestos that is immersed or fixed in a natural or artificial binder material (such as cement, plastic, asphalt, resins or mineral ore), and manufactured products containing asbestos are not subject to the requirements of this subchapter." Therefore, unless the asbestos is friable, it is not regulated by DOT. However, friable and non-friable asbestos (which may become friable) are regulated by EPA.

The EPA requires the use of an Asbestos Waste Shipment Record (WSR) or a similar form when you ship asbestos-containing materials. Figure A-8 is a copy of the WSR. EPA has codified the requirements in 40 CFR 61.150. The generator must keep WSRs for at least 2 years.

The WSR will also meet DOT requirements if the basic shipping description is used for the materials in Item 5 of the form and the DOT-required emergency response information is added to the form.

Although asbestos is not defined as an RCRA hazardous waste by the federal government, it may be transported on a *Uniform Hazardous Waste Manifest*. However, if a manifest is used, the following EPA-required information must be added to the shipping document:

- Name, address, and telephone number of the waste generator.
- Name and address of the regulating National Emission Standards for Hazardous Air Pollutants (NESHAPS) office.
- Approximate quantity of asbestos in cubic yards or cubic meters.
- Name and telephone number of disposal site operator.
- Name and physical site location of the disposal site.
- Date transported.
- Name, address, and telephone number of the transporter.
- Certification.
- Emergency response information.

The WSR already includes blocks for this required EPA information.

In addition to the required DOT marking, labeling, and placarding requirements associated with asbestos, the generator must also mark the vehicles used to transport asbestos-containing materials during loading and unloading of the wastes in accordance with 40 CFR 61.149(d). NESHAP standards in 40 CF 61.150(a)(1)(iv) require warning labels on either the containers or wrapped material as specified by OSHA under 29 CFR 1910.1001(j)(4) or §1926.1101(k)(8).

Asbestos Waste Shipment Record		
1. Work Site name and mailing address	Owner's name	Owner's telephone no.
2. Operator's name and address		Operator's telephone no..
3. Waste disposal site (WDS) name, mailing address, and physical site location		WDS phone no.
4. Name, address of responsible agency		
5. Description of material	6. Containers No. Type	7. Total quantity m^3 (yd^3)
8. Special handling instructions and additional information		
9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.		
Printed/typed name & title	Signature	Month Day Year
10. Transporter 1 (Acknowledgment or receipt of materials)		
Printed/typed name & title Address and telephone no.	Signature	Month Day Year
11. Transporter 2 (Acknowledgment or receipt of materials)		
Printed/typed name & title Address and telephone no.	Signature	Month Day Year
12. Discrepancy indication space		
13. Waste disposal site Owner or Operator: Certification of receipt of asbestos materials covered by this manifest except as noted in Item 12.		
Printed/typed name & title	Signature	Month Day Year

Figure A-8. ***Asbestos Waste Shipment Record.***

What is so special about PCBs?

PCBs may or may not be regulated as a hazardous material by the DOT. DOT regulates PCBs when they are shipped as a DOT hazardous substance (RQ per container) or as a marine pollutant.

To be a DOT hazardous substance:

- there must be a reportable quantity of 1 lb by weight of PCB in a single container, and
- the concentration of PCB must be at least 20 ppm (0.002%).

Non-bulk shipments of PCB by motor vehicle, railcar, or aircraft are not regulated as marine pollutants because of the exception provided in 49 CFR 171.4(c). To be regulated as a DOT marine pollutant the:

- PCB concentration must be at least 1% by weight (10,000 ppm) AND
- PCB must be shipped by vessel OR
- PCB must be shipped in bulk packaging (by any mode).

Basic shipping descriptions for PCBs in the DOT hazardous materials table are:

- "Polychlorinated biphenyls, liquid, 9, UN 2315, PG II" and
- "Polychlorinated biphenyls, solid, 9, UN 3432, PG II".

It is also important to note that Special Provision 140 also states that if the PCBs are transported by highway or rail, the PG is changed from II to PG III.

(Per 49 CFR 171.202(b), the basic description may be shown with the ID number listed first.)

Shipments of reportable quantities of PCBs should be described by one of the following BSDs:

- "RQ, Polychlorinated biphenyls liquid, 9, UN 2315, PG II" or
- "RQ, Polychlorinated biphenyls, solid, 9, UN 3432, PG II"

or the basic description may be shown with the ID number listed first. The sequence with the identification number first is mandatory for air and water shipments and will become mandatory on 1 January 2013 for all modes of transportation.

Although PCBs are not RCRA hazardous waste, EPA has imposed manifesting requirements to track PCB shipments via regulations promulgated under the Toxic Substances Control Act (TSCA) in 40 CFR 761 Subpart K.

PCB contaminated waste must be manifested when subject to TSCA disposal requirements in 40 CFR 761, Subpart D. Generally this applies to PCB wastes where the PCB concentrations are greater than or equal to 50 ppm. However, it also includes PCB waste below 50 ppm where the PCB concentration below 50 ppm is the result of dilution. These wastes are required to be managed as if they contained PCB concentrations of 50 ppm and above.

Exceptions from manifesting PCBs. Manifests are not required for:

- PCBs <50 ppm resulting from spills before 18 April 1978 regardless of original concentration.
- PCBs <50 ppm resulting from spills of PCB <500 ppm before 1 July 1979.

PCBs that are not regulated by DOT (not a hazardous substance and not a marine pollutant), may still require manifesting under TSCA (if the PCB concentration in the waste exceeds 50 ppm). As discussed in the 21 December 1989 Federal Register, when the DOT shipping description does not apply, the shipment can be described simply as "PCBs" or "Polychlorinated biphenyls."

Several additional pieces of information are required by EPA when you ship PCBs:

- The load must be identified by a serial number or a unique identifying number;
- The weight of the PCBs must be specified on the manifest in kilograms; and
- The earliest date the PCBs were removed from service for disposal must be specified on the manifest.

In addition, TSCA requires specific procedures to confirm that the waste is received at the TSDF. Unlike hazardous wastes, TSCA requires that the generator confirm by telephone, or by other means agreed to by both parties, that the storer or disposer actually received the waste. The generator has to make this confirmation by the close of business the day after he or she receives the signed manifest from the commercial storer or disposer.

In 40 CFR 761.215, TSCA requires exception reports to be filed in a way similar to RCRA exception reports. In addition, a generator of PCB waste must submit a *One-Year Exception Report* to the EPA Regional Administrator (disposal region) whenever:

- The generator transfers the PCBs to the disposer of the PCB waste on a date more than 9 months from the date of removal from service.
- The generator has not received a *Certificate of Disposal* within 13 months from the date of removal from service for disposal.
- The generator receives the *Certificate of Disposal* showing the PCBs were disposed of more than 1 year after the date they were removed from service.

The regulations in 40 CFR 761.209 require that the generator keep the final signed copy of the manifest for 3 years.

Generators of PCBs must receive from the disposal facility a *Certificate of Disposal* (CD) in accordance with 40 CFR 761.218. The disposal facility must send the generator the certificate within 30 days of the actual disposal date. 40 CFR 761.218 requires the generator to receive and retain for 3 years a copy of the *Certificate of Disposal* from the disposal facility.

What's so special about Munitions and Explosives of Concern (MEC) and Munitions Constituents (MC)?

The majority of unexploded ordnance (UXO), discarded military munitions (DMM), and other MEC are destroyed or treated at the site where they are discovered. However, on occasion, MEC or Material Potentially Presenting an Explosive Hazard (MPPEH) must be transported offsite for treatment or disposal. In these cases, you must determine if the material is a hazardous waste and if that material meets a DOT hazard class.

UXO and DMM are unique high hazard items and specific protocols must be followed. If your site contains UXO, the appropriate staff must refer to Army Technical Bulletin (TB) 700-2 and DOD 6055.09-STD for hazard classification considerations and general responsibilities regarding the storage, and "safe to ship" determinations. All unidentified UXOs are required to be handled, transported, and stored as Hazard Division (HD) 1.1.

UXO and DMM found during an investigation or response action are, by definition, likely to meet the definition of a solid waste and likely to be considered a D003 reactive hazardous waste. If you confirm that the material is a hazardous waste, a Uniform Hazardous Waste Manifest must be used as the necessary DOT shipping paper. You will have to determine a PSN and complete the manifest to comply with all EPA and DOT requirements. EOD personnel, the MM Remedial Action Districts, and the MM Design Centers have specialized personnel that can assist with the DOT classification of UXO or DMM. Specific requirements pertaining to the classification and movement of MEC can be found in EP 385-1-95a, EP 1110-1-18, Army Technical Bulletin (TB) 700-2, DOD 6055.9-STD, and the *Defense Transportation Regulation*, DTR 4500.9-R-Part II. You must comply with those requirements as applicable.

If the ordnance and explosives or military munitions waste does not meet the definition of a hazardous waste, it may still be necessary to determine if the material meets a DOT hazard class. If it does meet a DOT hazard class, a DOT shipping paper will be necessary, as well as full compliance with the DOT requirements.

Can I ship MC-contaminated media or samples without an EX number?

The DOT has delegated the authority to classify ammunition and explosives to DOD. DOD's hazard classification authority is the Department of Defense Explosives Safety Board (DDESB). DDESB has accepted the 10% criterion for secondary explosives for the last 10 years in its review and approval of explosive safety submissions for sampling, removal and remediation of soils containing secondary explosives. In December 2004, DDESB formally voted to approve the 10% secondary and 2% primary "explosive soil" criteria (see Chapter 12, DOD 6055.09-STD). Thus, DDESB does not consider media containing less than 10% secondary or less than 2% primary explosives as Class 1 material nor is the media considered a "new explosive" subject to the classification provisions of 49 CFR 17.56. Therefore, the materials would not need to be

described as an explosive and the requirement to mark the package or modify the PSN with an EX number would not apply.

Normally, there should be no reason to ship "explosive soils" (MEC) for analysis because field screening methods for high levels of contamination are available. However, if the need arises, staff would need to follow TB 700-2 protocols and coordinate with the U.S. Army Technical Center for Explosives Safety (USATECS) to request an Interim Hazard Classification (IHC) and tentative PSN. Explosive soils are required to be managed as HD 1.1. All DOT requirements apply, however, because EX numbers are assigned by DOT after a Final Hazard Classification (FHC) is made, an EX number may not be available. The sample provisions of 49 CFR 172.101(c)(11) and TB 700-2 apply.

For MEC (other than UXO or DMM) or MPPEH that are being shipped offsite for disposal the same procedures and protocols outlined above for an IHC must be applied. Provisions within TB 700-2 could allow such shipments.

Do I need a manifest for radioactive waste?

The type of shipping paper needed will depend on the regulatory status of the radioactive material. In addition to the EPA's Hazardous Waste Manifest, the Nuclear Regulatory Commission (NRC) also has a manifest. If, after the radioactive material is properly profiled and characterized, it is subject to Nuclear Regulatory Commission (NRC) regulation, an NRC Uniform Low-Level Radioactive Waste Manifest (Forms 540 and 541) must be used. This manifest fulfills the DOT shipping paper requirements as well as the NRC requirements.

If the material to be disposed of is also a hazardous waste, an EPA Uniform Hazardous Waste Manifest must be used in addition to the NRC manifest. If the material is a hazardous waste and a radioactive waste, but not NRC regulated, then only a Hazardous Waste Manifest is needed because it can also serve as a DOT Bill of Lading.

If the material is not hazardous waste or NRC licensed, but it still is regulated by DOT, typically as either a Class 7 or Class 9 material, a BoL can be used.

Recycling/disposal facilities may require certain types of shipping papers (e.g., NRC manifest) even if the material is not regulated by DOT, EPA, or NRC. In these cases, you should make a notation on the shipping document that the material is not regulated by NRC, EPA, or DOT, as appropriate. If the material is not regulated by EPA, DOT or the NRC, a Chain-of-Custody document should be used unless the recycling/disposal facility requires a specific form. An example is provided as Figure A-9. In addition, there are some basic Corps of Engineers disposal notification requirements. These requirements are found in a CEMP-RT Memorandum dated 17 November 1997. HQUSACE requires all Corps disposal of Low-Level Radioactive Waste (LLRW) (both DOD and non-DOD generated) to be reported to the Environmental and Munitions Center of Expertise (EM CX, formerly the HTRW CX) prior to shipment. This is strictly for record keeping. Figure A-10 shows the example notification form requirements found in the memorandum. Contact an EM CX health physicist at (402) 697-2478 to request the latest version of the notification form.

In any event, if you are shipping class 7 radioactive materials, DOT has very specific requirements for the shipping papers, marking, labeling, and placarding in 49 CFR 173 Subpart I.

EP 415-1-266 identifies additional guidance for shipping FUSRAP wastes. In the ***I need help!*** section, there is a checklist for the DOT requirements associated with shipping FUSRAP wastes as Low Specific Activity wastes.

Sample
FUSRAP Waste Transportation Chain-of-Custody for Materials Not Subject to DOT, EPA, or NRC Regulation

Chain-of-Custody Number: Page 1 of 2

Shipper Name: _____
Address: _____
_____
_____
Phone: _____

_____
(Signature of offeror and date offered)

Transporter #1 Name: _____
Address: _____
_____
_____
Phone: _____

_____
(Signature of offeror and date offered)

Transporter #2 Name: _____
Address:
Address: _____
_____
_____
Phone: _____

_____
(Signature of offeror and date offered)

Receiving Facility Name: _____
Address: _____
_____
Phone: _____

_____
(Signature of offeror and date offered)

Shipment Directions: This shipment is to only be off-loaded at the facility designated above. The following person shall be immediately notified if there is any deviation for the information provided herein:

U.S. Army Corps of Engineers POC: _____ _____
(Name) (Phone)

Description of material:

Type of Waste: [Soils, debris, liquids, or sludges] not subject to DOT, EPA, or NRC regulation.
This material contains low activity levels of radionuclides from the remediation
of a CERCLA site.
Description of physical/chemical form of waste: _____

***Certification*:** I hereby declare that this material is not NRC-licensed material, not EPA regulated, does not meet the definition of a DOT Class 7 (radioactive) material, does not meet any other DOT hazard class, and has less than a DOT RQ of radionuclides in the packaging..

_____ _____
(Signature of Health Physicist) (Date)

Figure A-9. Sample Radioactive Waste *Chain-of-Custody Form*.

Sample
FUSRAP Waste Transportation Chain-of Custody for Materials Not Subject to DOT, EPA, or NRC Regulation

Chain-of-Custody Number: Page 2 of 2

Packaging Information:

Weight of shipment per package/freight container: _____

Type of package: _____

License plate number or rail car identifier: _____

Is package leaking? _____

Type and number of markings/labels affixed to package/freight container: _____

_____

Emergency and Notification Information: Immediate notification of any emergencies concerning this material shall be made to the U.S. Army Corps of Engineers within 1 hour:

U.S. Army Corps of Engineers POC : _____ _____
(Name) (Phone)

Certification: To the best of my knowledge the information provided herein is accurate.

_____ _____
(Signature) (Date)

Additional Comments:

This Chain of Custody last updated: 06-30-08

* ***Note:*** *This Chain-of-Custody form shall only be used if the DOT, EPA, and/or the NRC do not regulate the material being sent to disposal.*

Figure A-9 (cont'd). Sample Radioactive Waste *Chain-of-Custody Form*.

Department of Defense Executive Agency
Low-Level Radioactive Waste Disposal Coordination

In accordance with DOD 4715.6-R and DOD EA procedures, submit this LLRW disposal plan information to:
HQ, OSC, AMSOS-SF, 1 Rock Island Arsenal, Rock Island, IL 61299; Fax to: (309)782-2988;
or e-mail to: prestonk@osc.army.mil or crooksk@osc.army.mil Apr-01

JOB/PROJECT INFORMATION (INITIAL NOTIFICATION)

Job/Project Name:					
Site Location:		Site Name:			
Project POC Name:			Organization:		
Phone:		Fax:		E-mail:	
Installation Name:					
Installation POC:			Organization:		
Anticipated Start Date:					
Suspected Contaminants:					

DISPOSAL INFORMATION

Originating State:		Compact:		Compact Notified:	
Compact POC:		Phone:		E-mail:	
Destination State:		Compact:		Compact Notified:	
Compact POC:		Phone:		E-mail:	
Disposal Facility:					
Disposal POC:		Phone:		E-mail:	
Transportation Method:					
Transport Company Name:					
Transport POC:		Phone:		E-mail:	
Permit(s) Required:		Copies of Permit(s) or Application(s) Attached:			
Regulator POC:		Phone:		E-mail:	

MATERIAL/WASTE INFORMATION

Mixed Waste Present:		Waste Profiled Yet:	
Description of Waste/Profile:			
Total Volume of Material/Waste:	**ft³**	Estimated Cost of Disposal:	**$0**

Type of Container	Number of Container	Radionuclide(s) Present	Activity per Container	Physical and/or Chemical Form
			µCi	

Figure A-10. Corps of Engineers sample notification form for disposal of radioactive waste.

	See Attached for Additional Container Information			See Attached Manifest(s)
GENERATOR REVIEW				
Type of Request:		Full Coordination		Initial Notification
Reviewed By:			Date:	
DOD COMPONENT PROGRAM OFFICE REVIEW				
	DLA	Navy	Air Force	USACE
Comments:				
Signature:			Date:	
Forwarded to DOD Executive Agency:			Date:	
EXECUTIVE AGENCY REVIEW				
Following review of this information, the DOD EA will provide a return copy to the Project POC and DOD Component Office within 10 days.				
Comments:				
Signature:			Date:	

Figure A-10 (cont'd). Corps of Engineers sample notification form for disposal of radioactive waste.

What are my responsibilities when I sign an HW manifest?

When you sign an HW manifest as the generator or "on behalf of" the generator, you are personally responsible for compliance with the requirements of 40 CFR 260 through 262, part 268, and the DOT regulations in 49 CFR 171 through 180 as the offeror of the hazardous materials. If you sign HW manifests "on behalf of" a generator, this also establishes their responsibility for compliance with all applicable regulations, and so you should ensure that the actual generator is aware of this. The basic requirements are as follows. You must:

- Properly identify and classify wastes.
- Obtain an EPA identification number.
- Use an HW manifest when transporting hazardous wastes.
- Complete and certify land ban documentation.
- Properly package, label, and mark wastes.
- Properly placard the transport vehicle.
- Properly manage wastes stored on-site.
- Inspect the stored waste weekly.
- Post required emergency information.
- Store wastes in compatible containers.
- Maintain the required records.
- File the EPA biennial report as required by 40 CFR 262.41 or an *Annual Hazardous Waste Report* if so required by the state, or both.

One very important responsibility that comes with manifesting is that you, or the generator, must ensure that a copy of the completed manifest is received within 45 days from the date that the waste was accepted by the transporter. If the copy is not returned by the 35th day, you or the generator must check on the status of the shipment. If by the 45th day the HW manifest is not returned, an Exception Report must be filed.

The Exception Report must include at a minimum a:

- Legible copy of the HW manifest for which the generator has not received confirmation.
- Cover letter signed by the generator or an authorized representative explaining the efforts taken to locate the shipment and the results of those efforts.

Many states require additional information in their Exception Report. You should check with your state to determine the appropriate requirements.

What am I actually signing?

When you sign an HW manifest, you will actually be signing the EPA generator and DOT offeror certification found in Item 15 of the manifest. You will probably also have to sign the Land Disposal restriction notification form if a signature is required. The only time a signature is required under the LDR regulations is when your waste DOES NOT need treatment. So be careful as to which certification you are signing. Although the generator or designated representative will sign the LDR notification forms, anyone familiar with the waste streams, including the chemist or contractor can sign the waste profile sheets because these are not required documents under EPA or DOT regulation.

Straight BoLs can be signed by a DOT-trained and appointed USACE representative or the contractor as the offeror of the materials. Contractors are not authorized to sign as an agent of the government or on behalf of the government. When a contractor signs the BoL, he is signing as the offeror of the HAZMAT. If the desire is to have the contractor sign the BoLs for non-hazardous waste, then it is important to have this in the contract specifications or performance-based contract.

For shipments that are not EPA or DOT regulated, the contractor should sign any associated paperwork associated with those shipments.

What authorizations do I need to sign a hazardous waste manifest or any type of shipping paper for the agency?

As previously discussed, you must have received initial and recurrent training in all the functions for which you are signing and certifying. In addition, you must receive some form of security training. You also need to have been certified and issued an appointment letter from your commander or his/her delegated representative authorizing you to sign HW manifests or any other type of shipping paper for hazardous materials on behalf of the agency.

What are my responsibilities as a construction representative?

If you are the construction representative responsible for signing the HW manifest, you will need to verify that the manifest was prepared correctly and in accordance with all DOT and EPA requirements. You will then need to determine that all waste was properly EPA and DOT classified, labeled, marked, and packaged, and in good condition for shipment. You will also have to ensure that the vehicle is properly placarded when it is loaded to leave the site. You will need to ensure that the LDR Notification form and emergency response information are also attached to the manifest. If you observe any discrepancies, corrections must be made before the waste is moved. These requirements apply to all shipments of DOT hazardous materials including the signing of the BoL. Furthermore, DTR 4500.9-R-II, chapter 204, paragraph D.6 requires that the individual who signs the certification statement must personally inspect the HAZMAT being certified.

When the construction representative signs the manifest, he or she is also responsible for all recordkeeping and reporting requirements. The construction representative must ensure that the return copy from the designated facility, or "comeback copy" of the manifest, has been received within the allotted time and all applicable recordkeeping and documentation requirements are fulfilled. To assist the construction representative in keeping track of the comeback copies of manifests, a manifest tracking sheet similar to the example given in Figure A-11 is recommended. Because local requirements may vary, field offices are encouraged to develop their own tracking sheets.

Manifest number	Date signed by initial transporter	Initial Check at 35 days	Exception Report filing date (45 days)	Date manifest received	Comments

Figure A-11. Sample manifest tracking sheet.

What is the "Off-Site Rule"?

Besides the waste profile, manifest, and land disposal restriction notification paperwork, there is an additional obligation found under the implementing regulations of CERCLA as part of the National Oil and Hazardous Substance Pollution Contingency Plan (NCP). That requirement is the "Off-Site Rule," found in 40 CFR 300.440, *Procedures for Planning and Implementing Off-site Response Actions*. Basically, the regulation requires that when CERCLA waste is to be dealt with offsite, it must be managed in a permitted facility that is not releasing hazardous waste, hazardous constituents, or hazardous substances into the environment. This regulation applies to all entities conducting removals and remedial actions under CERCLA authority at any type of cleanup site (Superfund, FUDS, FUSRAP, BRAC, IRP, etc.) EPA has developed a website where it posts the current list of Offsite Coordinators for all 10 EPA Regional Offices. It is located at: http://www.epa.gov/osw/hazard/wastetypes/wasteid/offsite/.

The treatment and disposal facility's compliance is determined by the EPA Region in which it is located. The rule requires that, prior to shipping wastes offsite, the EPA regional point of contact (POC) be called to verify the facility status. Although there is no regulatory requirement to maintain a record of the conversation, it is suggested that the call be documented so that you can prove to a regulator that you did indeed make the phone call if questioned.

What are the other recordkeeping requirements?

The RCRA recordkeeping requirements can be found in 40 CFR 262.40 through 262.44 and 40 CFR 268.7. The following is a general list of the records that must be maintained:

- Manifests and exception reports.
- Land ban documents and certifications.
- Biennial or annual hazardous waste reports, or both.
- Waste analyses.

These records must be maintained for at least 3 years under RCRA. However, the Army requires that all waste identification, tracking, and disposal records be maintained permanently. ARIMS policy should be reviewed for particular record retention requirements.

Manifest records should be maintained in the project files. If the construction representative has signed the manifest for the customer and the customer requests all records, the construction representative should keep a copy of all manifests and associated documentation for the project files.

Am I out there all alone?

Completing and certifying the paperwork associated with a shipment of hazardous waste usually takes more than just one person. You may need to get help from an industrial hygienist, a health physicist, a chemist, a regulatory specialist, or a legal counsel, or all of them! While the contractor will prepare the paperwork, label and mark the containers, and placard the vehicle, your job is to ensure that everything has been done properly in accordance with all regulations, prior to making the certification. It is imperative that the contract, under which the work is being done, contains supporting chemistry-related requirements and procedures to aid in properly completing the paperwork. The sampling and analysis requirements should be developed on a site-specific basis. These items are imposed by the specifications addressed by the contractor in a document known as the Sampling and Analysis Plan (SAP). This plan, which is composed of two parts—the Field Sampling Plan (FSP) and the Quality Assurance Project Plan (QAPP)—defines the field activities, including all requirements for sampling, field documentation, field measurements, sample packaging, shipping, etc. This plan also defines the laboratory analytical and chemical data reporting requirements and specifies the data review protocol for evaluating the project's success and the quality control (QC) and QA sampling required. (More recently, in some cases, the two-part SAP is replaced by a QAPP that addresses all sampling and analysis requirements.)

The project-specific supplement to the QA plan, developed by the Resident Engineer, must define the Corps quality assurance role in the manifesting, including any government review and acceptance of laboratory data for payment and utilization.

Area and Resident Engineers must formalize a review (by qualified in-house project support staff, such as regulatory specialists, chemists, industrial hygienists, or the EM CX) of project-specific transportation and disposal-related documents prior to signature. This is especially true in the case of large and/or variable waste streams. These packages should be designated as Category 1 submittals in the contract, subject to formal government approval prior to implementation.

Are there any security-related requirements?

Each person who offers for transportation or transports one or more of the following hazardous materials (HAZMAT) must develop and adhere to a security plan for hazardous materials:

- A highway route-controlled quantity of a Class 7 (radioactive) material in a motor vehicle, rail car, or freight container;
- More than 25 kg (55 lb) of a Division 1.1, 1.2, or 1.3 (explosive) material in a motor vehicle, rail car, or freight container;
- More than 1 L (1.06 qt) per package of a material poisonous by inhalation that meets the criteria for Hazard Zone A;
- A shipment of a quantity of hazardous materials in a bulk packaging having a capacity equal to or greater than 13,248 L (3500 gal) for liquids or gases or more than 13.24 m^3 (468 ft^3) for solids;
- A shipment in other than a bulk packaging of 2268 kg (5000 lb) gross weight or more of one class of hazardous materials for which placarding of a vehicle, rail car, or freight container is required;
- A select agent or toxin regulated by the Centers for Disease Control and Prevention under 42 CFR 73; or
- A quantity of hazardous material that requires placarding under the provisions of subpart F of Part 172.

The security plan must include an assessment of possible transportation security risks for shipments of the hazardous materials and appropriate measures to address the assessed risks. Under 49 CFR 172.802, the components of a security plan must include:

(1) Personnel security, which includes measures to confirm information provide by job applicants;
(2) Unauthorized access, which includes measures to address the assessed risk that unauthorized persons may gain access to the HAZMAT covered by the security plan; and
(3) Enroute security, which includes measures to address the assessed security risks of shipments of HAZMAT covered by the security plan enroute from origin to destination, including shipments stored incidental to movement.

The security plan must be in writing, must be specific to the HAZMAT to be transported, and must be retained for as long as it remains in effect. Copies of the security plan, or portions thereof, must be available to the employees who are responsible for implementing it, consistent with personnel security clearance or background investigation restrictions and a demonstrated need to know. The security plan must be revised and updated as necessary to reflect changing circumstances. When the security plan is updated or revised, all copies of the plan must be maintained as of the date of the most recent revision. All HAZMAT employees must be trained in the plan.

DOD requires compliance with all applicable DOT security requirements in DTR 4500.9-R-II, Chapter 205, paragraph X. It does not matter if the HAZMAT is in commerce because DOD has decided that it will comply with the DOT regulation.

The EM CX may be contacted for further information and guidance on how to prepare a security plan if it is determined that your shipment meets one or more of the seven DOT conditions that require preparation of a security plan (49 CFR 172.800).

What are the spill reporting requirements?

There are several environmental regulations that require the notification of spills or releases. In addition, this is one area where many states require immediate notification. This section deals with only the federal DOT requirements found as 49 CFR 171.15. Specific state spill reporting requirements should be verified with the appropriate states. Generally, the reporting responsibility will reside with the transporter while the material is in transportation. However, if a shipper discovers that a reportable incident has not been reported by the transporter, he should contact his Office of Counsel to ensure the proper notifications are made.

The DOT requires that the following hazardous material incidents be immediately reported to the National Response Center at (800) 424-8802 or (202) 267-2675 by the person in physical possession of the material at the time an incident occurs during transportation:

- Incidents involving death or injury that require admittance to a hospital;
- Incidents where the general public was evacuated for an hour or more;
- Incidents where one or more major transportation arteries are closed for one or more hours;
- Incidents where the operational flight plan of an aircraft is altered;
- Spills or fire involving radioactive materials or etiologic agents;
- Incidents, that in the judgment of the carrier, should be reported because of the nature of the situation; or
- Spills of a marine pollutant exceeding 119 gal for a liquid or 882 lb for a solid. Notice involving etiologic agents may be given to the Director, Centers for Disease Control, U.S. Public Health Service, Atlanta, GA, (800) 232-0124, in lieu of the National Response Center.

DOT regulations further require the submittal of a written report within 30 days on DOT Form F5800.1 for:

- any spill identified above;
- any release of any amount of a hazardous material from its package; or
- the release of any amount of a hazardous waste.

EPA regulation 40 CFR 302 requires all spills of a hazardous substance at or over the reportable quantity be reported to the National Response Center.

Corps HTRW spill policies and procedures are outlined in the CEMP-RA memorandum EP 1110-1-33, *Environmental Quality - Spill Reporting Procedures for USACE Hazardous, Toxic and Radioactive Waste Projects*, dated 15 November 08. This memorandum is available on the Internet at http://140.194.76.129/publications/eng-pamphlets/. District offices must coordinate spill reporting procedures through their Emergency Operations Center in accordance with ER 500-1-1 *Emergency Employment of Army and Other Resources - Civil Emergency Management Program*, and notify command and counsel offices of the spill and response actions.

What are the liabilities associated with transporting hazardous materials?

The signing of a false certification could result in civil penalties under the RCRA or criminal penalties for knowingly making any false material statements or representations. Accordingly a Corps employee who signs a generator's certification on the manifest must ensure that the contents of a shipment are in fact classified, packed, marked, labeled, and in proper condition for transport in accordance with applicable regulations.

The *Federal Facility Compliance Act* of 1992 expressly waives sovereign immunity of the federal government to civil and administrative penalties and fines for failure to comply with hazardous waste regulations. It also exempts federal employees acting within the scope of their official duties from personal liability for civil penalties. This is why it is important for the USACE HAZMAT employee to be properly trained, tested, certified, and appointed by their Commander to sign shipping papers on behalf of the Corps of Engineers.

However, federal employees are still subject to any criminal sanctions, including imprisonment or fines, imposed under federal or state solid or hazardous waste laws for making false statements or representations.

The *Federal Employee's Liability Reform and Tort Compensation Act* protects federal employees acting within the scope of their official duties from personal liability for common law torts, namely acts of negligence resulting in personal injury or property damage. However, this protection from tort liability does not extend to violations of federal environmental laws that could result in civil penalties or criminal sanctions. Additionally, negligent acts of employees can create tort liability for the agency and the United States under certain circumstances.

CERCLA creates environmental liability regardless of fault for categories of persons listed in Section 107 of the Act, known as Potentially Responsible Parties (PRPs). PRP liability related to transportation and disposal of hazardous wastes may arise for parties who arrange for or who transport hazardous substances to a facility where there is a later release. The government may be

the defendant in CERCLA liability actions, and contractors who either arrange for or provide transportation or disposal services may also be CERCLA PRPs.

For further information on civil, criminal, tort, and PRP liabilities associated with transporting hazardous materials and wastes, a Corps employee should contact District Counsel for details, and must contact counsel any time a notice of potential liability or a demand is received from either a regulator or another party.

So, after I sign the manifest, what actually happens to the shipment?

Once the manifest is signed, the transporter will sign his or her name in Item 17 of the manifest acknowledging receipt of the load. The transporter then transports the waste to the TSDF designated in Item 8 of the manifest. Once the waste is delivered to the TSDF, a representative of the TSDF will inspect the shipment and sign as accepting or rejecting the waste identified on the manifest. If the facility accepts the waste, the facility will then sign Item 20, give a copy of the signed form to the transporter as proof of delivery of the shipment, and then send a copy of the signed and completed manifest back to the generator. Because the Facility Certification acknowledges receipt of the waste except as noted in the Discrepancy Space in Item 18a, the certification should be signed for both waste receipt and waste rejection, with the rejection being noted and described in the space provided in Item 18a. Fully rejected wastes may be forwarded or returned using Item 18b after consultation with the generator.

When waste is forwarded or returned to the generator, the person accepting the waste at the alternate facility or the original generator must acknowledge receipt of the waste described on the manifest by signing and entering the date he received the waste in Item 18c. Partially rejected wastes and residues must be reshipped under a new manifest, to be initiated and signed by the rejecting TSDF as offeror of the shipment.

So what happens if my waste is forwarded or rejected?

There will be occasions when a shipment cannot be received by the designated TSDF. This may be due to various factors such as waste quantity delivered, waste type, compliance status of the TSDF, etc. A TSDF may have to reject or forward the waste to a subsequent TSDF or return the waste to the generator.

Rejected/Forwarded Loads and Container Residues A TSDF can ship rejected/forwarded waste to a subsequent destination using the original manifest when the full load is rejected/forwarded and the transporter has not left the premises. This is because the shipment has remained in transportation. On the other hand, the waste is no longer in transportation once the transporter leaves, and a new manifest must be generated for the subsequent shipment. Furthermore, where only a partial load is rejected, a new manifest must be generated to forward or reject the partial load. In all scenarios, the interim TSDF is required to coordinate with the generator prior to rejecting or forwarding the shipment. However, the TSDF does not have to obtain the generator's permission to reject or forward the waste.

Various scenarios for documenting manifest discrepancies for rejected/forwarded loads and container residues are specified within 40 CFR 264.72 and 265.72 including:

- Forwarding of full or partial loads (or residues) to an alternate facility after the transporter has left the site.
- Forwarding of full loads to an alternate facility while the transporter is still present.
- Rejecting wastes and residues back to the generator.

Forwarding of Full or Partial Loads (or Residues) to an Alternate Facility If a partial load is forwarded (including residues) or if a full load is forwarded after the transporter has left the site, the TSDF must prepare a new manifest as follows:

- Write the generator's EPA ID number in Item 1 and the generator's name, mailing address, and site address (if different than mailing address) in Item 5.
- Write the alternate designated facility and the facility's EPA ID number in the designated facility Item 8.
- Record the manifest tracking number of the old manifest in the "Special Handling and Additional Information Block" of the new manifest and indicate that the shipment is a residue or rejected waste from a previous shipment.
- Copy the manifest tracking number from the new manifest onto the original manifest in the Item 18a discrepancy field and send a copy to the generator.
- Write the DOT description for the rejected load or residue in Item 9 on the new manifest.
- Complete remaining items of new manifest as appropriate (emergency response phone number, transporter information, etc.).
- Sign the certification on the new manifest as the offeror of the shipment.

Forwarding of Full Load to an Alternate Facility while Transporter Is Still Present
Provided the transporter is still on the premises, the TSDF has the option to forward the shipment to an alternate facility using the original manifest as follows:

- TSDF signs Item 20 to receive the waste except as noted in Item 18a. (Item 20 is signed for both waste receipt and waste rejection.)
- TSDF notes the rejected or forwarded waste in discrepancy Item 18a.
- TSDF specifies the next destination facility in the Alternate Facility space, Item 18b.
- TSDF retains a copy of the manifest for its records and gives remaining copies to transporter.
- Subsequent facility signs for receipt of the waste using Item 18c.

Rejecting Wastes and Residues Back to the Generator Unless the entire shipment is being rejected back to the generator and the transporter has remained on site, the rejecting TSDF must prepare a new manifest as follows:

- Write the TSDF's EPA ID number in Item 1 (not the generator's ID number) and the generator's name, mailing address, and site address (if different than mailing address) in Item 5.

- Write the name of the initial generator and the generator's EPA ID number in the Designated Facility space, Item 8.
- Record the manifest tracking number of the old manifest in the "Special Handling and Additional Information Block" of the new manifest and indicate that the shipment is a residue or rejected waste from a previous shipment.
- Copy the manifest tracking number from the new manifest onto the original manifest in the Item 18a discrepancy field.
- Write the DOT description for the rejected load or residue in Item 9 on the new manifest.
- Complete remaining items of new manifest, as appropriate (emergency response phone number, transporter information, etc.).
- Sign the certification as the offeror of the shipment.

However, if a full shipment is being returned to the generator and the transporter has remained on site, then the TSDF may use the original manifest for the subsequent shipment as follows:

- TSDF signs Item 20 to receive the waste except as noted in Item 18a. (This is signed for both waste receipt and waste rejection.)
- TSDF completes Item 18a indicating the full load rejection.
- TSDF specifies the generator information in the Alternate Facility space, 18b.
- TSDF retains a copy of the manifest for its records and gives remaining copies to transporter.
- Generator signs for receipt of the waste using Item 18c.

What does the future hold for hazardous waste manifesting?

EPA has proposed in the *Federal Register* to allow manifests to be prepared, signed, transmitted, and stored electronically. As of the date this document, no final rule has been issued.

When the manifest is transmitted electronically, a hazardous materials shipping paper still needs to physically accompany the shipment in accordance with DOT regulations. A BoL can be prepared or a hard copy of the electronic manifest can be printed out and carried aboard the transport vehicle. The manifest automation standards proposed include:

- Electronic data interchange (EDI) and Internet Form file standards for the electronic manifest.
- Standards for electronically signing the manifest with electronic signatures.
- Computer security standards for systems creating, processing, and storing electronic manifests.

Use of electronic manifesting will be voluntary, and adoption of electronic manifesting authorities will be at the discretion of each state. Therefore, it is conceivable that not all parties involved in the manifest process will possess electronic manifesting capabilities. EPA proposes a number of options to facilitate use of electronic options. For example, when the generator and receiving facility have electronic capabilities but the transporter does not, the transporter could manually sign a paper copy of the manifest, and the generator could electronically note that the

transporter's manual signature is on file. When the transporter has electronic capabilities but the generator does not, the transporter could provide a portable device to obtain the generator's signature or the generator could authorize the transporter to electronically sign the manifest on the generator's behalf.

Commonly asked questions and answers

Is the facility designated on the manifest the ultimate disposal facility?

No. The facility designated in Item 8 or 18b of the manifest may be an RCRA-permitted treatment, storage, or disposal facility.

How do I make sure my waste gets to the ultimate disposal facility?

Although many people refer to the manifest as a "cradle to grave" tracking form, that is not exactly accurate. The manifest tracks the waste from the generator to the TSDF identified in Item 8. As discussed above, the TSDF does not have to be a disposal facility or the final disposal facility. Under RCRA there are no regulatory requirements for the storage or treatment facility to send the generator a copy of the manifest tracking the waste from the facility to ultimate disposal. However, you can contractually control this situation by requiring that the waste be tracked to ultimate disposal and that you are sent a copy of all manifests transporting the waste to ultimate disposal, prior to payment. (This will get their attention!) Corps offices arranging for the disposal of wastes from Corps remediation sites should contractually require a Certificate of Disposal (CD) from the facility treating and disposing of the wastes. Under RCRA there is no requirement for a TSDF to provide a CD for HW. This is different from PCB wastes, which do require a CD under regulation.

If I am not sending my waste on a Hazardous Waste Manifest, how can I make sure it gets to the ultimate disposal facility?

As discussed above, even by using an HW manifest, it is difficult to track ultimate disposal. When wastes are disposed of using a form other than an HW manifest, such as an Asbestos WSR or a BoL, there is even less certainty of ultimate disposition. For all wastes, including asbestos and FUSRAP wastes, the Corps should contractually require a CD showing ultimate placement or disposal. This requirement is included in the *Transportation and Disposal Guide of Hazardous Materials Specification*, UFGS-02 81 00 (April 2006.)

Is there a Corps guide specification related to manifesting?

The EM CX has prepared an excellent guide specification for transporting and disposing of hazardous materials, Unified Guide Specification, UFGS-02 81 00, *Transportation and Disposal Guide of Hazardous Materials Specification*, (April 2006). It can be found on the Internet at http://www.wbdg.org/ccb/DOD/UFGS/UFGS%2002%2081%2000.pdf.

If I have a DOT shipping document, who signs it?

Anyone who has been DOT trained, tested, and certified by his employer (and appointed if DOD is employer) may sign a DOT BoL. Typically, Corps contracts should require the contractor to sign the BoL as prescribed in UFGS-02 81 00. If the contractor signs the BoL, he is signing as the offeror, not as an agent for the government.

If my shipment is not DOT regulated or EPA regulated, but the disposal facility wants someone to sign a "shipping document," who signs?

Because there is no regulatory requirement for the document, the contractor is responsible for signing the requested "shipping document" as a sort of application to use the disposal facility. It is recommended that this be put into the contract or scope of work to avoid a dispute between the Corps and the contractor.

DOT requires a 24-hour emergency telephone number monitored at all times the hazardous material is in transportation. Do I have to carry a cell phone?

Maybe. The agency is responsible for making a POC available for emergency contact. A Corps office may assign this duty to an employee who signs the manifests, or the Corps may require that the hazardous waste contractor do this as part of the contract services. Be aware that DOT discourages the use of cell phones because they can be turned off, lose power, or the signal may not always reach the cell phone user. If the cell phone is not answered during an incident, DOT will likely assess a fine for not having a proper emergency point of contact.

Do I have to use an Asbestos Waste Shipment Record?

No. EPA requires a form similar to the WSR. This can be an HW manifest, a DOT BoL, or a government BoL. However, EPA requires certain information, so if a BoL or an HW manifest is used to transport asbestos, additional information required by 40 CFR 61.150 must be included on the shipping document (see *Asbestos Checklist*).

I am a conditionally exempted small quantity generator of hazardous waste. Do I need DOT training even though I won't be signing a Hazardous Waste Manifest?

Yes. The DOT training requirements apply to anyone shipping DOT-regulated materials. Even if you are conditionally exempt under RCRA and you do not need to prepare a manifest, when you ship hazardous materials offsite, a DOT shipping document is still needed. To prepare this shipment or to sign the form, DOT training, certification, and appointment are required.

Where is the requirement that I need "manifest training"?

There are no specific EPA or DOT regulations that require you to have "manifest training." Because the majority of environmental work done by the Corps involves the transportation of

hazardous waste, the Corps provides the DOT-required function-specific training to its employees on the use of an HW manifest and the DOT regulations in one training course.

Under what circumstances could manifest training be avoided?

If you do not perform any pre-transportation functions involving HAZMAT, or handle any hazardous materials (used oil, paints, pesticides, solvents, batteries, corrosives, ignitables, reactives, oil-based paints, toxics, certain cleaners, chemicals, fluorescent, mercury or sodium lamps, used oil filters, antifreeze, etc.) or hazardous wastes and no hazardous materials are offered for offsite transportation, then you would be considered exempt from the requirement.

We have never been inspected by a DOT, EPA, or state regulator, so why worry about this?

First and foremost, these requirements are prescribed by federal and state laws and regulations. As federal employees, we are required to comply with legal and regulatory requirements, and do not have the authority to excuse ourselves from compliance. There are monetary fines and penalties, such as jail, for non-compliance as well. Second, as employees of the Department of the Army, we are obligated to adhere to our own Engineer Regulations, Army Regulations, as well as Department of Defense regulations and directives that address these issues. It is important to note that inspections by the DOT Federal Railroad Administration (FRA) are becoming more commonplace at USACE remediation projects that are shipping by rail after the September 11 incident. HAZMAT employee training records, security awareness training, and security plans are routine questions that are asked by the FRA inspectors.

At Civil Works projects we do not generate a large volume of wastes, so what is the best way to dispose of our wastes offsite?

There are many options. Many projects use commercial contractors who will recycle solvents or used oils. Typically, a tolling agreement is set up where the contractor comes when called to transport the wastes off site to a recycling facility. Remember, recycling does not alleviate you from any DOT HAZMAT shipper requirements or RCRA generator requirements because the materials you recycle may still be hazardous wastes or hazardous materials. Another option is to use the Defense Reutilization Marketing Service in your area. If you are near a large military base, DRMS is typically a tenant on the base. The DRMS Web site is: http://www.drms.dla.mil/

We arrange for recycling of our solvents. Because the recycler does not use a manifest for the solvents it takes, do I still need DOT training?

This depends on whether or not the solvents meet a DOT hazard class. If the solvents do meet a DOT hazard class, then, yes, to sign any paperwork or to mark or label the drum, you must be DOT trained, certified, and appointed. It is recommended that you request the solvent supplier provide virgin solvent that has a flashpoint above 145°F so the waste is not an ignitable (D001) hazardous waste when sent for disposal. In addition, liquids with a flashpoint greater than 140°F and less than 200°F would be regulated as a combustible liquid only in bulk packaging unless the combustible liquid is a hazardous substance, hazardous waste, or marine pollutant. If the

flashpoint is above 200°F the liquid would not meet the definition of a combustible liquid. You must also control what is placed in the solvent parts washer so it does not become hazardous waste.

Do we have to go through all this training to transport small amounts of paints, freons, welding materials, gasoline, etc., around on a project?

Materials of Trade (MOT) are defined by DOT as hazardous materials, other than wastes, that are carried on a motor vehicle to protect the health or safety of the passengers or operator of the vehicle, or to support the operation or maintenance of that vehicle, or to support a business that is other than transportation. In most instances, it is anticipated that the Corps will use the third aspect of this definition to transport hazardous materials incidental to their primary mission. For example, a drill rig may transport hazardous material samples from a restoration site back to the laboratory. In this case, those samples can be considered MOT if the conditions of 49 CFR 173.6 are met. Or, at a Civil Works project, pesticide applicators may transport pesticides in a tank on the back of their vehicle for application in the field. Under both scenarios, the MOT exception can be considered.

There are limitations on the amount of material that can be transported per vehicle under this exception. The following table summarizes the various DOT hazard classes subject to the MOT exception and the respective quantity limitations.

MOT exceptions *cannot be applied to* hazardous material that is self-reactive, poisonous by inhalation, or a hazardous waste.

The aggregate gross weight of MOT on a vehicle may not exceed 440 lb except for permanently mounted tanks. Permanently mounted tanks can contain up to 400 gal of a dilute mixture (< 2%) of a class 9 material.

MOT are excepted from the DOT requirements, however, non-bulk packages must be marked with PSN or common name including the RQ; bulk packages of dilute class 9 material must have ID number on two opposing sides; cylinders must be marked in accordance with the DOT regulations and the driver must be informed of the requirements of the MOT regulations and the presence of hazardous materials aboard the vehicle.

Packagings must be leak tight for liquids and gases or sift proof for solids. In addition, each material must be in the original packaging or one of equal or greater strength and integrity.

The complete requirements are found in 49 CFR 173.6.

DOT Hazard Class	Division	Category
	2.1**	Flammable gas
	2.2**	Nonflammable gas
3*		Flammable liquid
	4.1*	Flammable solid
	4.3***	Dangerous when wet
	5.1*	Oxidizer
	5.2*	Organic peroxide
	6.1*	Poison
	6.2+	Infectious substance
8*		Corrosive
9*		Miscellaneous Hazardous Material
ORM-D*		Other regulated materials

* Note: Materials of trade quantity limitations for Class 3, 8, 9, Division 4.1, 5.1, 5.2. 6.1 or ORM-D exceptions apply to the above DOT hazard classes, divisions and ORM-D materials provided the packaging does not exceed the following gross mass or capacity:

- 0.5 kg (1 lb) or 0.5 L (1 pint) for Packing Group (PG) I material
- 30 kg (66 lb) or 30 L (8 gallons) for PGII, PGIII, or ORM-D material
- 1500 L (400 gallons) for a diluted mixture, not exceeding 2% concentration, of a Class 9 material

**Note: For DOT Division 2.1 or 2.2 material cylinder gross weights are limited to 100 kg (220 lb).

***Note: Materials of trade exceptions applied to packaging containing a DOT Division 4.3 material in PGII or PGIII is limited to a gross capacity of 30 ml (1 ounce).

+Note: Specific limitations are in regulations.

Figure A-12. DOT Hazard classes and divisions with Material of Trade exceptions.

What is "universal waste" and must it be manifested when sent off site?

Universal wastes are batteries, cancelled or recalled pesticides, lamps (light bulbs), and mercury-containing equipment. Generators of universal wastes have the option of managing them as hazardous wastes or avoiding full regulation by meeting universal waste management standards in 40 CFR 273. Advantages of managing materials as universal wastes rather than hazardous wastes include longer accumulation times and less stringent transportation requirements. Furthermore, they are not subject to hazardous waste generator, transporter, treatment, or storage requirements. Therefore, there is no 90-day accumulation clock ticking, hazardous waste manifests are not required, and they are not required to be marked "hazardous waste." Instead, they are marked to identify the type of universal waste; for example, "Universal Waste – Batteries." Only handlers who accumulate more than 5000 kg of universal waste at any one time are required to maintain shipping records.

Although a manifest is not required to transport hazardous wastes that are being managed as universal wastes under 40 CFR 273, remember they may be DOT-regulated hazardous materials and a DOT BoL may be required. Typically batteries, pesticides, and mercury-containing equipments are DOT-regulated HAZMAT.

What happens if a state my transporter is going through does not recognize the waste as universal waste and there is no manifest on the vehicle?

Even though the generator's state did not require the use of a manifest for universal wastes generated in its state, if the transporter travels through a state that does not recognize your waste as universal waste, for that portion of the journey a manifest is required. So, in practice, the generator would probably decide to prepare a manifest when the universal waste leaves the site and use it as a BoL in states not requiring a manifest, but as a true manifest in the states requiring a manifest.

Who signs the manifest at FUSRAP sites?

For FUSRAP sites, all manifests will be signed by authorized Corps personnel. *Resident Engineer Management Guide (REMG) for Hazardous, Toxic, and Radioactive Waste (HTRW) Projects*, EP 415-1-266, and EM 110-35-1 *Management Guidelines for Working with Radioactive and Mixed Waste* outline these requirements.

Who signs the manifest when MEC waste is sent offsite?

A representative from the USACE Military Munitions Design Center or the USACE Military Munitions Remedial Action District is responsible for signing all shipping documents. If agreed to by the MM Design Center or MM Remedial Action District representative and the construction representative, the construction representative may sign the manifests.

Who signs Waste Profile Sheets?

These forms are not a requirement of any EPA, NRC, or DOT regulation, thus no one in particular is required to sign them by federal regulation. Typically, the person responsible for signing the manifests also signs the profiles, because he is familiar with the waste stream, has been trained, and has an authorization letter to sign paperwork associated with the manifest. If the person signing the manifest does not understand the profile sheet or lab analysis, then a project chemist or health physicist or the contractor may review the profiles and sign or explain the information to the construction representative, then he or she can sign the forms.

Do my samples being sent to a lab require a manifest?

The samples being sent to a laboratory do not need an HW manifest if you comply with the RCRA sample exclusion in 40 CFR 261.4(d). Basically, to qualify for the exclusion, samples must be shipped in accordance with DOT requirements, the RCRA sample exclusion conditions, and any other applicable shipping requirements.

Who signs the manifest for DERP work at a military installation?

It is the responsibility of the installation environmental coordinator to sign these manifests.

Is a manifest only required when shipping hazardous wastes?

No. A manifest is also required when you are shipping PCBs in accordance with the *Toxic Substances Control Act* and the implementing regulations at 40 CFR 761. An NRC manifest is required to accompany the HW manifest when shipping licensed radioactive wastes that are also hazardous wastes.

Is a manifest required for shipping asbestos?

No. An asbestos Waste Shipment Record (WSR) or a similar form is required under 40 CFR 61. A manifest may be used if additional information as specified in 40 CFR 61 is added to the manifest.

Do I need an EPA identification number when shipping PCBs?

Yes, but you can use "40 CFR PART 761" as your EPA identification number in some cases. A generator of PCB waste who is exempted from notification under §761.205(c)(1) or who notifies EPA in a timely manner under §761.205(c)(2)(i), but has not yet received a unique identification number, can place “40 CFR PART 761” in Item 1 of the manifest in accordance with 40 CFR 761.202. A generator of PCB waste that has short- or long-term storage under 761.65 (b) or (c)(7) must not transport or offer PCB waste without having received an EPA identification number.

Do land ban records need to accompany a manifest when I am shipping PCBs offsite?

No. If the waste is strictly PCB dielectric fluid and electric equipment containing such fluid and is hazardous only because it fails Toxicity Characteristic (Hazardous Waste Codes D018 through D043 only), 40 CFR 261.8 exempts it from RCRA regulation and, hence, the land disposal restrictions do not apply.

Who is responsible for obtaining the EPA identification number?

If you are working at a military base, the base will already have a number for its facility that should be used. If you are at a FUDS or FUSRAP site, the Corps will need to obtain the number. If you are working at an EPA site, the site will already have a number.

When should the Corps obtain the EPA identification number?

Typically, it will take 30 days to obtain a number. Because the number must be placed onto the manifest, you must have it before you can ship. The number should be obtained during the design phase, if possible.

Is it possible to need two or three EPA identification numbers at a site under one contract?

Yes, it is possible but not a typical situation. An EPA ID number is needed for each site. On-site, as defined in 40 CFR 260.10 is “...the same or geographically contiguous property which may be divided by public or private right-of-way, provided that the entrance and exit between the

properties is at crossroads as opposed to traveling along the right-of-way. Non-contiguous properties owned by the same person but connected by a right-of-way which he controls and to which the public does not have access, is also considered onsite property." If your contractor is picking up waste from three different sites, he may need three different manifests with three different EPA numbers.

We have a contractor working at a military base. Can the contractor get his own EPA ID number for the wastes he generates or must he use the military base's EPA ID number?

It depends. An EPA ID number is typically tied to a generator site. The definition of "onsite" is found in 40 CFR 260.10, and is defined in the previous paragraph. From reading the definition of onsite, it would be reasonable to conclude that if a contractor were working on a military base, the state would still consider that one site (the contiguous military base) and thus one generator, and the contractor could use the base's EPA ID number. However, many military bases do not want the contractor to use their EPA ID number unless the government is really liable for the waste. For example, if hazardous waste is generated by removing lead-based paint from a DOD building, it would not be unusual for the installation to allow use of their EPA ID number. However, if a contractor chooses to bring chemicals onsite that subsequently become hazardous waste, for example, excess product or used paint thinner from paint brush cleaning, many military bases do not want the contractor to use their EPA ID number, since there is no reason DOD should assume generator liability for a waste stream generated by the contractor. When this is the case, you need to discuss the issue with the state regulatory office and see whether or not they will issue a separate EPA ID number to the contractor operating onsite.

What additional information is always required on a manifest?

Although there is no item on the *Uniform Hazardous Waste Manifest* for the DOT-required emergency response information, such as the ERG guide number, this information should be added to Item 14.

Will all the waste leaving a Superfund or DERP site need a manifest?

No. There may be occasions when the materials being sent offsite are not hazardous wastes as defined by state or federal regulation. In these cases, you do not have to use a manifest. If, however, your shipment is a hazardous material as defined by DOT, you will have to use a BoL.

Can I use a manifest when shipping non-hazardous wastes?

Yes, but the hazardous wastes must be entered first in sequence on the manifest, then the non-hazardous materials can be entered. Furthermore, all hazardous wastes are hazardous materials so these items will have an "X" in Item 9a of the manifest. If the shipment is entirely a non-hazardous waste (except PCBs), it is recommended that a different form of shipping paper be used to avoid confusion as to whether the material is an RCRA HW.

When shipping PCBs, does the manifest need to contain any special information?

Yes. 40 CFR 761.207 requires that the weight of the PCBs (in kilograms), the date removed from service, and a unique identifying number be placed on the manifest. In addition, all emergency information as required by 49 CFR 172 Subpart G must be included.

Is getting the comeback copy of the manifest sufficient when closing out a shipment of PCBs?

No. 40 CFR 761.218 requires that you also receive a Certificate of Disposal and 40 CFR 761.208 requires that the generator obtain, by telephone or other means, confirmation that the waste was received at the TSDF by close of business the day he or she receives the comeback copy of the manifest.

Are all hazardous wastes hazardous materials and vice versa?

No. All hazardous wastes are hazardous materials, but all hazardous materials are not hazardous wastes. Hazardous materials are regulated by DOT. Hazardous wastes are regulated by EPA. By definition, all hazardous wastes subject to the federal hazardous waste manifesting regulations are also hazardous materials.

What is a DOT hazardous substance?

DOT hazardous substances are defined in 49 CFR 171.8. A DOT hazardous substance is denoted as a reportable quantity on shipping papers. It is the amount released into the environment from one container.

What is the importance of a hazardous substance?

There are several important implications. If your shipment contains a hazardous substance, the letters “RQ” must appear on the manifest or shipping paper in association with the basic shipping description. If you spill a hazardous substance in an “RQ,” you must notify the National Spill Response Center in Washington, DC. Materials that are not hazardous wastes may still be regulated under DOT if you are shipping in one container an RQ of a hazardous substance. In this case, the material would be a hazardous material regulated under DOT. In addition, other legal duties and potential liabilities established in CERCLA arise if there is a release of a hazardous substance.

What is an "RQ"?

Reportable quantity. This is the amount of a hazardous substance that, if spilled, must be reported to the National Spill Response Center in Washington, DC.

What is the telephone number of the National Response Center?

The number is (800) 424-8802. The number is manned by the U.S. Coast Guard 24 hours per day and seven days a week.

What are the recordkeeping requirements for manifests?

Copies of manifests and associated lab results must be kept on file for a minimum of 3 years from the date that the initial transporter accepted the waste in accordance with 40 CFR 262.40. Copies of exception reports and biennial reports must also be maintained for 3 years in accordance with the regulations. The Army recordkeeping system, ARIMS, requires that these documents be permanently maintained. This applies to both military and civil work.

What are the recordkeeping requirements under the Land Disposal Restrictions (LDRs)?

Generators must retain onsite a copy of all notices, certifications, demonstrations, waste analysis data, and other documents produced pursuant to 40 CFR 268.7 for at least 3 years. As previously stated, Army recordkeeping policy under ARIMS requires that all waste indentification, tracking, and disposal records be maintained permanently

What other paperwork accompanies the manifest?

The entire manifest package includes the manifest, lab analysis (profiles), land ban records and certifications, and a copy of the *Material Safety Data Sheet* or *Emergency Response Guide* information.

What liabilities are associated with signing the manifest and land ban certifications?

For an answer, call your Office of Counsel.

What is the federal policy on paying state-imposed taxes associated with hazardous waste disposal?

In general, if a contractor is paying the disposal facility, then state taxes related to those charges are owed by the contractor unless there is an exception under state law. For assistance in determining the amount and applicability of taxes for a specific project, call your Office of Counsel.

What are the manifest refresher training requirements?

49 CFR 172, Subpart H and DTR 4500.9-R-II, Chapter 204 requires training for employees involved in transporting hazardous materials. This DOT regulation requires a refresher every 3 years; however, DTR 4500.9-R-II, Chapter 204 requires a refresher every 24 months.

Do Marine Pollutant requirements apply to waste shipped in all modes of transportation?

No. The Marine Pollutant provisions do not apply to non-bulk shipments by rail, highway, or air. (Non-bulk packages are packages that contain less than 119 gal of liquids or 882 lb of solids.) The provisions do apply to all bulk shipments by rail, highway, or air and all non-bulk and bulk shipments by vessel.

Is there any guidance on how to determine disposal alternatives for wastes from a FUSRAP site?

The EM CX has written guidance to assist districts in profiling their FUSRAP wastes in accordance with the *Atomic Energy Act*, or any other statutes or regulations, and court decisions. FUSRAP wastes may also be governed by EPA hazardous waste or DOT hazardous materials regulations, or both, as appropriate for the types of materials to be shipped for disposal. The paper, *FUSRAP Disposal Alternatives*, dated July 1998, is available to Corps employees from the EM CX.

Does the Corps have any specific labeling requirements for radioactive wastes?

In addition to the DOT markings and labels, the Corps requires that a specially designed marking sticker be placed on all containers of radioactive waste being sent for disposal [EM 1110-35-1, paragraph 11-5.b.]. The marking sticker will give the disposal/recycling facility destination and the telephone number of a Corps POC with knowledge of the contents of the package or conveyance. This additional marking sticker duplicates existing information that is required on shipping papers for DOT hazardous materials. Therefore, it must not violate any DOT requirements or create any confusion (e.g., incorrect label color). Vinyl labels (3 × 5 inches) with the custom information may be purchased at a minimal cost when they are purchased in bulk quantities. Several highly visible labels will be placed on top of the container liner (e.g., burrito bags in rail gondolas) or exterior sides of transport vehicles, to ensure that workers see them. The label should be similar to the example shown in Figure A-13.

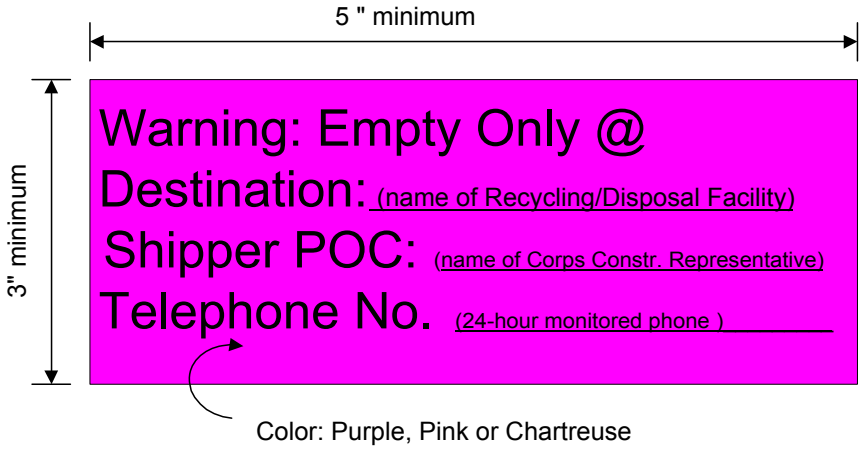


Figure A-13. Example of Corps-required radioactive marking sticker.

I need help!

The following pages provide information to assist the shipper.

Table A-6. Important sections in DOT hazardous materials regulations.

Important Sections of 49 CFR (2008)	
Subject	**49 CFR Reference**
Program Procedures, Preemption, Enforcement	107
General Definitions	171.8
HMT Information	172.101
HMT	172.101
Hazardous Substance Table (Appendix A to HMT)	172.101 (Tables 1 & 2)
Special Provisions	172.102
Shipping Papers	172.200
Shipper's Certification	172.204
Waste Manifest	172.205
Marking	172.300
Labeling	172.400
Placarding	172.500
Emergency Response Information	172.602
Emergency Contact Phone	172.604
Precedence Table	173.2a
Exceptions for Shipment of Waste Materials	173.12
Lab Packs	173.12
Shipper's Responsibility	173.22
General Packaging	173.24
Overpacks	173.25
General Requirements for Air	173.27
Non-bulk Packaging Sections	173.201–173.213
Rail	174
Air	175
Water	176
Highway	177
Performance-Oriented Packaging	178.500
UN (POPS) Packaging Testing	178.600
Hazardous Class Definitions	
Class 1 (Explosives)	173.50
Class 2 (Compressed Gas)	173.115
Class 3 (Flammable Liquid)	173.120(a)
Combustible Liquid	173.120(b)
Class 4 (Flammable Solid)	173.124
Class 5 (Oxidizing Material)	173.127
Class 6 (Poison)	173.132
Class 7 (Radioactive Material)	173.401
Class 8 (Corrosive Material)	173.136
Class 9 (Miscellaneous)	173.140
ORM-D	173.144

The following telephone numbers and Web sites are great sources of information.

Table A-7. Important telephone numbers.

Type of Hotline	Agency	Telephone
Spill reporting	USCG	(800) 424-8802
Chemical emergencies	CHEMTREC	(800) 424-9300
Transportation	DOT	(202) 366-4488
Environmental & Munitions Center of Expertise	USACE	(402) 697-2559 (402) 697-2560 (402) 697-2634

Table A-8. Useful Web sites.

Useful Web Sites	Address
EM CX	http://www.environmental.usace.army.mil/
USACE Construction Bulletins	http://www.wbdg.org/ccb/browse_org.php?o=31
USACE Publications	http://www.usace.army.mil/publications/
DOTHAZMAT	http://hazmat.dot.gov/regs/files/IAEA%20DraftChanges.htm
EPA Regulations	http://www.access.gpo.gov/cgi-bin/cfrassemble.cgi
EPA	http://www.epa.gov/
DENIX	https://www.denix.osd.mil/portal/page/portal/denix

There are many PROSPECT training courses available from the USACE Learning Center. This is a list of just a few that are specific to DOT and HW manifesting.

Table A-9. PROSPECT DOT training classes.

Name of Course	Vendor	Telephone
Hazardous Waste Management and Manifesting	PROSPECT course control number 223	(256) 895-7445
Hazardous Waste Management and Manifesting Refresher	PROSPECT course control number 429	(256) 895-7445
Initial Radioactive Waste Transportation Class	PROSPECT course control number 441	(256) 895-7445
Radioactive Waste Transportation Recertification Class	PROSPECT course control number 430	(256) 895-7445

 The following checklists are provided to help you prepare a shipment of hazardous wastes, asbestos, and PCBs in accordance with EPA and DOT requirements.

Checklist 1.
Manifest Preparation Checklist

_____ Review the HW manifest. Have all the items been completed in accordance with the instructions?

_____ Have you reviewed the laboratory analyses?

_____ Is the "Proper Shipping Name" (PSN) correct?

_____ Verify the basic shipping description for the PSN through the DOT HMT. Is it correct?

_____ Have "RQ" values been calculated and indicated where appropriate?

_____ Is the material a Marine Pollutant?

_____ Are all applicable listed and characteristic waste numbers shown?

_____ Have all "Poison Inhalation Hazard" (PIH) wastes been indicated where appropriate in the basic shipping description? You must use new communications standards for shipments of PIH chemicals.

_____ If hazardous and non-hazardous wastes are being shipped on the same manifest, have you placed an "X" in Item 9a for all the hazardous materials?

_____ If any of the wastes require special handling instructions, are these instruction listed in Item 14? (DANGEROUS WHEN WET, POISON-INHALATION HAZARD, etc)

_____ Is an emergency telephone number listed in Item 3 on the manifest? (If there are different emergency telephone numbers for various wastes, provide the telephone number in Item 9b with the PSN and leave Item 3 blank.)

_____ Did you enclose the proper Emergency Response Guides with the manifest and did you indicate the guide number on the manifest? (Indicate ERG in Item 14 and identify it for each Item 9 hazardous material.)

_____ Are the signed Land Ban certifications and laboratory analyses with the manifest?

_____ Have you signed and dated the manifest as the generator?

_____ Has the transporter signed and dated the manifest?

_____ Did you retain the generator's copy of the manifest?

If the answers to all above questions are yes or (X), verification of manifest is complete.

Checklist 2.
Requirements for Shipping Document

Basic Shipping Description Checklist	Reference
____ Determine if the material is a DOT regulated hazardous material.	49 CFR 173.22
____ Determine if the material is a hazardous waste.	40 CFR 262.11
____ If the material is a hazardous waste, determine the appropriate EPA waste codes.	40 CFR 261, Subparts C and D
____ Is the hazardous material/waste listed by technical or chemical name in the Hazardous Material Table (HMT)	49 CFR 172.101 & 172 Subpart C
____ If not, is there a chemical class, use or end use name?	49 CFR 172.203(k) & 172.101(c)(12)
____ If not, is there a generic n.o.s. shipping name that can be be used based on the hazard class and packing group of the material/waste?	49 CFR 172.203(k) & 172.101(c)(12)
____ If not and the material is a hazardous waste, hazardous substance, or marine pollutant use the hazardous waste or hazardous substance generic shipping name.	49 CFR 172.203(k)
____ If the material/waste has more than one hazard, check the precedence list and the precedence table.	49 CFR 173.2a
____ For mixtures of hazardous materials/wastes, use a generic n.o.s. shipping name based on the characteristics of the mixture.	49 CFR 172.203(k)
____ Once the proper shipping name (PSN) is determined, look up the name in the HMT and determine the associated:	49 CFR 172.101
- Hazard class	HMT column 3
- Identification number	HMT column 4
- Packing group	HMT column 5
____ Determine the modes of transportation by which the material/waste is not regulated.	HMT column 1

Checklist 2 (cont'd).
Requirements for Shipping Document

Shipping Paper Checklist	**Reference**
____ Include in the Basic Shipping Description: - Identification Number (ID #) - Proper Shipping Name (PSN) - Hazard Class (HC) [Include Subsidiary Hazard Class in "( )" when applicable] - Packing Group (PG) Above sequence approved for all modes and international shipments (ID#, PSN, HC, PG) but must be in that order for air and water shipments.	49 CFR 173.202
Previous order (PSN, HC, ID #, PG) may be used for rail and highway until 1 Jan 2013	49 CFR 171.14(e)
____ Include a (constituent) if:	
- generic n.o.s. shipping name is used	49 CFR 172.203(k)
- constituent that is the RQ is not included in the PSN	49 CFR 172.203(c)
- constituent that is the Marine Pollutant is not in the PSN	49 CFR 172.203(l)
- constituent that is the Poison is not included in the PSN	49 CFR 172.203(k)
____ If the material is an RCRA waste, add the word "Waste" in front of the PSN.	49 CFR 172.101(c)(9)
____ Determine if the material has an RQ - Reportable Quantity. Modify Basic Shipping Description with "RQ".	49 CFR 172.203(c)
____ Determine if the material is a Marine Pollutant. If shipping by bulk or non-bulk vessel, modify the Basic Shipping Description with "Marine Pollutants".	49 CFR 172.203(l)
____ Determine if the material is a Poison Inhalation Hazard and if so, modify the Basic Shipping Description with "Poison Inhalation Hazard Zone __". Check the HMT column 7 for special provision 1, 2, 3, 4, 5, 6, or 13.	49 CFR172.203(m)
____ If the material is a sample being shipped to a laboratory for analysis, add the word "Sample" in association with the basic shipping description if shipping under sample provision.	49 CFR 172.101(c)(11)

Checklist 2 (cont'd).
Requirements for Shipping Document

Shipping paper checklist (continued)	**Reference**
Is the shipment being made under a special permit? If yes, special permit number must be on the shipping paper.	49 CFR 172.203(a)
Are you shipping limited quantity? If yes, include the words "Limited Quantity" or "LTD QTY" on shipping papers.	49 CFR 172.203(b)
Are you shipping Class 7 materials? Must include: __ Words "Radioactive Material" unless in the PSN __ Name of each radionuclide __ Description of physical and chemical form __ Activity (use SI units) __ Category of Label __ Transport Index __ Words "Exclusive use" as applicable For Fissile materials there are additional requirements. For highway route controlled quantity of class 7, use HRCQ.	49 CFR 172.203(d)
Are you shipping empty packages? __ Include the words: "Residue: Last Contained…"	49 CFR 172.203(e)
Are you transporting by air? __ The words "Cargo Aircraft Only" must be entered on shipping papers as applicable.	49 CFR 172.203(f)
Are you transporting by rail? __ Include the reporting mark and number on the shipping papers.	49 CFR 172.203(g)
Are you transporting by vessel? Identify the types of packaging, number of each packaging, name of shipper, gross mass of each packaging, minimum flash point if below 62ºC, and subsidiary hazards.	49 CFR 172.203(i)
Include Emergency Response information: __ 24-hour phone number __ Name of the Emergency Contact __ MSDS or Emergency Guide number	49 CFR 172.604

Checklist 3.
Packaging Requirements

Packing Checklist	Reference
____ Determine if the material can be sent under a small quantity exception.	49 CFR 173.4
____ Determine if the Materials of Trade exception could be used.	49 CFR 173.6
____ Determine if the material can be sent limited quantity.	49 CFR 172 HMT Column 8A
____ Determine the non-bulk or bulk packaging requirement.	49 CFR 172 HMT Column 8B or 8C
____ Are the materials to be sent hazardous wastes qualifying as a lab pack?	49 CFR 173.12
____ Are samples of hazardous materials being sent off site for analysis under the sample provision?	49 CFR 172.101(c)(11)

Checklist 4.
Marking Requirements

Non-Bulk Marking Checklist	Reference
____ Mark the PSN on the package. For n.o.s. entries, include technical name.	49 CFR 172.301(a)(1)
____ Mark the ID # on the package.	49 CFR 172.301(a)(1)
____ If waste, add the word "waste" unless EPA marking is used.	49 CFR 172.301(a)(2)
____ If ≥ 8820 lbs of one hazardous material, loaded at one facility, on one truck, mark ID # on all four sides of vehicle.	49 CFR 172.301(a)(3)
____ Mark consignee's or consigner's name and address.	49 CFR 172.301(d)
____ If package authorized by an special permit, mark package DOT-SP or DOT-E as appropriate.	49 CFR 172.301(c)
____ Mark radioactive class 7 materials package with gross mass (>110 lb) and package type (e.g., TYPE A, TYPE IP-1) and Trefoil if Type B package.	49 CFR 172.310
____ For combination packages where the inside package contains a liquid, include orientation marking (duplicative markings required).	49 CFR 172.312
____ For poisonous materials, mark package "Inhalation Hazard". Permanently mark non-bulk plastic packaging "POISON".	49 CFR 172.313
____ If PIH Zone A mark all sides of vehicle with ID#.	
____ If ≥ 2205 lb of one PIH, loaded at one facility, mark ID # on all sides of vehicle.	
____ Mark ORM-D materials.	49 CFR 172.316
____ Mark explosive materials with EX-number.	49 CFR 172.320
____ If transporting by vessel, mark Marine Pollutants.	49 CFR 172.322
____ Packages containing a reportable quantity of a hazardous substance shall be marked "RQ".	49 CFR 172.324

Checklist 4 (cont'd).
Marking Requirements

Bulk Marking Checklist	**Reference**
____ Check packages for specification markings on bottom and top or side of package.	49 CFR Subpart L and M
____ Mark each end and each side of packages ≥1000 gal with ID #. Mark two opposing sides if <1000 gal.	49 CFR 172.302
____ Mark two opposing sides of bulk packages containing PIHs with ID #.	49 CFR 172.313
____ Mark each side and each end with marine pollutant marking if ≥1000 gal, two opposing sides if <1000 gal.	49 CFR 172.322
____ For portable tanks, include PSN, owner's name, and ID # on all four sides.	49 CFR 172.326
____ For cargo tanks, mark all four sides with ID #.	49 CFR 172.328
____ For tank cars, mark ID # on all four sides and mark two sides with certain PSNs.	49 CFR 172.330
____ For multi-unit tank cars, mark PSN on opposing sides, mark ID # on opposing sides, and mark the vehicle itself with ID # on all four sides.	49 CFR 172.330

Checklist 5.
Labeling Requirements

Labeling Checklist	Reference
____ Determine the primary and subsidiary hazard label from column 6 of the Hazardous Materials Table.	49 CFR 172 HMT Column 6
____ Determine if material has an additional subsidiary hazard and needs another subsidiary hazard label.	49 CFR 172.402
Typically only a single label of each type is needed on a package; however, duplicate labels must be displayed on at least two sides or two ends when: — Package or overpack has a volume of more than 1.8 m^3 (64 ft^3) — Non-bulk package contains radioactive material — Portable tank has a volume of <1000 gal. — Freight container has a volume of ≥1.8 m^3, but <18 m^3	49 CFR 172.406(e)
Determine if a Handling Label is needed: — Cargo Aircraft Only label — EMPTY label corresponding to Class 7 packages	49 CFR 172.402(c) 49 CFR 172.403(d) and 173.428(e)

Checklist 6.
Placarding Requirements

Placarding Checklist	Reference
___ Determine the hazard class or division associated with the PSN for the material.	49 CFR 172.500
___ Determine if the hazard class is on Table 1 or Table 2.	49 CFR 172.504
Any amount of a material with a hazard class identified on Table 1 must be placarded.	49 CFR 172.504
When the aggregate gross weight of the materials having hazard classes displayed in Table 2 is 1001 lb or greater, the placards specified in Table 2 must be offered. In contrast, if the aggregate gross weight of the materials with hazard classes on Table 2 is <1001 lb, Table 2 placards are not required, but may be displayed.	49 CFR 172.504(c)
A DANGEROUS placard may be displayed for materials whose hazard class appears in Table 2 unless 2205 lb or more of one category of material is loaded at one facility.	49 CFR 172.504(b)
Materials with subsidiary hazards of Poison Inhalation and Dangerous When Wet, must be placarded for the subsidiary hazard.	49 CFR 172.505
In addition, a subsidiary hazard placard of CORROSIVE is required on fissile or low specific activity uranium hexafluoride.	49 CFR 172.505
Class 9 placard is not required for domestic transportation if bulk packages are properly marked with identification number.	49 CFR 172.504(f)(9)
Permissive placarding may be done for hazardous material, even when not required if placarding conforms with the requirements of this subpart.	49 CFR 172.503(c)

Checklist 7.
Asbestos Waste Shipping

Asbestos Waste Shipping Checklist

When shipping asbestos, both the EPA and DOT regulate the asbestos. Both agencies' requirements must be met. An asbestos generator may use a DOT Bill of Lading, an EPA hazardous waste manifest, or an Asbestos Waste Shipment record to ship asbestos; however, no one form includes all the required information from both agencies. This checklist outlines the additional items that must be added to the shipping document used.

If an asbestos Waste Shipment Record (WSR) is used, complete the entire form and add the required DOT information to the WSR:
____ PSN, Hazard Class, Identification Number, Packing Group, RQ (as applicable)
____ Emergency Response Information

If a Bill of Lading or hazardous waste manifest is used, complete the entire form and add the required EPA NESHAPS information to the form:
____ Name, address, and telephone number of the waste generator
____ Name and address of the regulating NESHAPS office
____ Approximate quantity of asbestos in cubic yards or meters
____ Name and telephone number of disposal site operator
____ Name and physical site location of the disposal site
____ Date transported
____ Name, address, and telephone number of the transporter
____ Certification
____ Emergency Response Information

DOT and EPA asbestos marking, labeling, and placarding requirements:
____ EPA marking requirements for the vehicle during loading and unloading (40 CFR 61.149(d)(1) and 61.150(c))
____ DOT marking requirements for packages containing asbestos (PSN and ID number) (49 CFR 172 Subpart D)
____ DOT Class 9 labels (49 CFR 172 Subpart E)
____ EPA container labeling requirements (40 CFR 61.150(a)(1)(iv))
____ Label containers/wrapped material with name of waste generator and location of generation (40 CFR 61.150(a)(1)(v))
____ DOT Class 9 placard requirements for transport vehicles containing >1000 lbs of asbestos (49 CFR 172 Subpart F)

Checklist 8.
PCB Manifest Requirements

PCB Manifest Requirements Checklist

Is this shipment DOT regulated? The answer is yes if any of the below are applicable.
_____ PCBs to be transported are a DOT hazardous substance or a marine pollutant.
_____ PCBs are mixed with a regulated hazardous waste.

Is a manifest needed? The answer is yes if any of the below are applicable.
_____ PCB concentration is ≥50 ppm.
_____ PCB concentration is <50 ppm as a result of dilution.
_____ Original PCB concentration of the spilled dielectric fluid ≥50 ppm or unknown.

Must be placed on manifest for bulk loads of PCBs:
_____ Identify the waste.
_____ Earliest date of removal from service for disposal.
_____ Weight in kilograms of the PCB waste.

Must be placed on manifest for PCB article containers and PCB containers:
_____ Unique identifying number.
_____ Type of PCB waste.
_____ Earliest date of removal from service for disposal.
_____ Weight in kilograms of the PCB waste contained.

Must be placed on manifest for PCB articles not in a PCB container:
_____ Serial number or unique identifying number.
_____ Earliest date of removal from service for disposal.
_____ Weight in kilograms of the PCB waste in each PCB article.

Emergency response information (49 CFR 172.604):
_____ On manifest as Item 3, must include the telephone number of person responsible for making decisions concerning the shipment in the event of an emergency.
_____ MSDS or Emergency Response Guide attached to manifest or referenced on manifest.

General requirements before shipping:
_____ Obtain manifest from EPA Registered Printer.
_____ Manifest is signed by hand.
_____ Initial transporter has signed and dated manifest.
_____ Generator retains his/her copy of manifest.
_____ Generator follows requirements for distributing manifests.
_____ Generator gives remaining copies of manifest to transporter.

Checklist 8 (cont'd).
PCB Manifest Requirements

PCB Manifest Requirements Checklist

After receiving the final manifest:

_____ Within 24 hours after receipt of the final manifest, the generator verifies by telephone the receipt and fate of the waste with the TSDF. Receipt verified on: _____.

_____ Certificate of disposal received within 35 days of disposal or contractually agreed time period.

_____ Confirm that ultimate disposal has occurred within one year from the date the PCBs were removed from service.

_____ Has the TSDF identified any discrepancies (40 CFR 761.210)?

_____ Has the TSDF filed a report with the state and/or EPA?

_____ Has the final manifest been received within 35 days of the date the waste was received by the transporter?

_____ If yes, do nothing, but retain a copy of final manifest on file. If no, immediately contact the transporter and TSDF to determine the status of waste.

_____ Document all telephone conversations attempting to locate waste.

_____ If final manifest is not received within 45 days from the date the waste was accepted by the initial transporter, file exception report (40 CFR 761.215).

Checklist 9.
DOT Low Specific Activity *Exclusive Use* Shipping

- ❑ Is the material to be disposed of DOT class 7 radioactive materials? If no, stop. Do not use this checklist.

- ❑ Is the activity of the material *distributed throughout*[1] over the weight of material? If yes, shipment may be LSA. If no, stop. Do not use this checklist.

- ❑ Does the material meet the definition of LSA-I? LSA-I materials are typically uranium (U) and thorium (Th) ores, concentrates of U or Th ores, or ores, solid unirradiated natural U or depleted U, or natural Th, radioactive material (non-fissile) where the A_2 is unlimited, or radioactive material where the activity is *distributed throughout*[1] and the average specific activity does not exceed 30 times the values for activity concentration specified in 49 CFR 173.436, or 30 times the default values listed in Table 8 of 49 CFR 173.433.

- ❑ Does the material meet the definition of LSA-II? LSA-II are materials in which the radioactive material is *distributed throughout*[1] and the average specific activity does not exceed $10^{-4}A_2/g$ for solids and gases and $10^{-5}A_2/g$ for liquids.

- ❑ Does the material meet the definition of LSA-III? LSA-III are materials in which the radioactive material is *essentially uniformly distributed*[1] in a solid or binding agent.

To transport LSA (49 CFR 173.427):

- ❑ External dose rate $\leq$10 mSv/hr at 3 m from the unshielded material (if >10 mSv/hr must package in accordance with 10 CFR 71).
- ❑ Quantity of material in a single conveyance less than or equal to values in Table 5.
- ❑ If fissile must meet additional requirements.
- ❑ Must meet the contamination control limits specified in Table 9 of 49 CFR 173.443.
- ❑ Must meet radiation level limits for exclusive and non-exclusive use of 49 CFR 173.441.

Packaging Requirements

You may transport LSA in any of the following non-bulk packages:
- ❑ Industrial package.
- ❑ DOT Spec 7A Type A package (domestically).
- ❑ Strong tight package if shipped *exclusive use* and quantity $\leq A_2$ quantity.
- ❑ NRC Type A package domestic transportation only and exclusive (10 CFR 71.52).
- ❑ Type B package.

You may transport LSA in any of the following bulk packages:
- ❑ Strong tight packaging or industrial packaging for solids if *exclusive use.*
- ❑ For liquids, specification packaging in tank cars and cargo tank motor vehicles if *exclusive use*.

[1]Difference between *distributed throughout* and *essentially uniformly distributed* for LSA material is not defined in the regulations but clarified in DOT RAMREG-003 (NUREG-1608) in paragraph 4.2.2 on page 4-7.

Checklist 9 (cont'd).
DOT Low Specific Activity *Exclusive Use* Shipping

Identify if you are shipping non-bulk or bulk and what type of package you plan to use.

- ❑ Are you using a provision that requires you to ship *exclusive use*?
  If required to go *exclusive use*, there must be:
- ❑ Sole use by a single consignor of a conveyance.
- ❑ Loading/unloading controls in place.
- ❑ No loose material or leakage.
- ❑ Packages must be braced.
- ❑ Specific instructions must be provided by offeror to carrier.
- ❑ Transport vehicle must be placarded.
- ❑ Domestically, no marking or labeling required if marked "Radioactive – LSA" and "RQ" on non-bulk and bulk packages.

Shipping Papers Requirements (*49 CFR 172 Subpart C*)

- ❑ Identification number (ID #), proper shipping name (PSN), and hazard class (HC).
- ❑ Previous sequence (PSN, HC, and ID#) is permissible for highway and rail until 1 January 2013.
- ❑ Total quantity of material corresponding to PSN.
- ❑ RQ if applicable.
- ❑ "Waste" precedes the PSN if the material is also federally regulated RCRA hazardous waste.
- ❑ "Marine Pollutant," if material contains a marine pollutant (bulk only for highway and rail shipments).
- ❑ Need to identify the radionuclide on the shipping papers.
- ❑ For mixtures, must identify on the shipping papers the radionuclides contributing to 95% of the activity.
- ❑ Description of physical/chemical form.
- ❑ Activity of package in SI units.
- ❑ Provide an exclusive use indicator.
- ❑ Category of label (if required).
- ❑ Transport Index (if required).
- ❑ Emergency response telephone number.
- ❑ For rail transport, include the reporting mark and number when displayed on the rail car, freight container, transport vehicle, or portable tank.
- ❑ Shipper's certification.

Marking, Labeling, and Placarding requirements

- ❑ Domestically, there are no marking or labeling requirements if non-bulk and bulk packages are marked "Radioactive - LSA" and "RQ" as applicable.
- ❑ Must placard all exclusive use shipments of LSA.

Note: If you do not ship *exclusive use*, you must package non-bulk in the following packages:

- ❑ Industrial package (IP-1, IP-2, or IP-3).
- ❑ DOT Spec 7A Type A package (domestically) or Type A packages.
- ❑ Type B packages (10 CFR 71).
- ❑ Type A & B fissile packages have additional requirements in 10 CFR 71.

In addition, all DOT marking, labeling, and placarding requirements fully apply to non-exclusive shipments. See DOT regulations.

Comments:

Checklist 10.
Emergency and Security Requirements

Emergency and Security Requirements Checklist	**Reference** _____
____ Ensure 24-hour telephone number is provided on shipping paper.	49 CFR 172.604
____ Check telephone number to make sure number is monitored when HAZMAT is in transportation.	49 CFR 172.604
____ Provide material safety data sheet or ERG to transporter. List guide number on shipping document.	49 CFR 172.602
____ Determine if shipper needs a DOT Security Plan based on the seven categories of HAZMAT.	49 CFR 172.800
____ If a security plan is needed, ensure in-depth training on plan has been conducted and documented.	49 CFR 172.704(a)(5)
____ Perform general security awareness training for all HAZMAT employees.	49 CFR 172.704(a)(4)
____ Prepare a plan if required.	49 CFR 172, Subpart I
____ If, after a Vulnerability Assessment is performed, it is determined that a Security Plan is not necessary, document this finding.	Good management practice

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Security Checklists

Security Checklist for the Shipper of HAZMAT

Question	Response	Recommendation
HAZMAT Storage and Handling		
1. How are hazardous materials secured?		
2. Does your company protect hazardous materials using alarms and/or other security systems?		
3. How are unauthorized personnel restricted from area?		
4. How are untrained personnel restricted from the area?		
5. What records are maintained to inventory HAZMAT?		
6. How often is the inventory audited?		
7. What is the reporting procedure if material is missing from the inventory?		
8. Do your employees have a checklist for packaging and transferring HAZMAT?		
9. Do they use the checklists effectively?		
10. Does your company implement routine security inspections?		

Security Checklist for the Shipper of HAZMAT (cont'd)

Question	Response	Recommendation
Training and Personnel		
11. How are shipping personnel trained?		
12. How are training records kept?		
13. Are handlers of hazardous materials trained in the recognition and disposal of suspect packages?		
14. Are all personnel trained in recognizing and dealing with aberrant behavior?		
15. Are employee background checks being conducted?		
16. Are background checks periodically reviewed and/or updated? How often?		
17. Does your company hold regular employee/ management meetings to discuss security measures and awareness?		
Carrier Safety		
18. How is the carrier's identification matched to shipping records?		
19. What program do you have to audit your carrier's security procedures?		
20. What procedure do you have to verify if the carrier is authorized to carry your HAZMAT?		

Security Checklist for

the Shipper of HAZMAT (cont'd)

Question	Response	Recommendation
Loading and Securing Shipments		
21. How is the carrier's equipment checked for safety?		
22. What procedures do you have to verify that your HAZMAT has been securely loaded and properly labeled?		
23. How do you track the shipment after it has left your facility?		
24. When is the receiver notified that the shipment is enroute?		
25. What information is provided to the receiver?		
26. Is this information adequate?		
27. What procedure do you have to follow up on the safe arrival of HAZMAT?		

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Guidelines for Conducting an Employee Background Check

√	Gaps in employment; Frequent job changes
√	Check all names used by the applicant
√	Type of military discharge
√	Citizenship
√	Present and prior residence information
√	Personal references
√	Criminal history
√	Verify U.S. citizenship for all employees
√	For non-U.S. citizens, verify that all immigration papers are on file and properly documented
√	Include fingerprints and photos in the personnel file
√	Conduct interviews with potential employee
√	Use the interview to appraise personality, character, motivation, honesty, integrity, and reliability
√	Report any suspicious information to your company's security department

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Security Checklist for the Carrier of HAZMAT

Question	Response	Recommendation
HAZMAT Transportation and Handling		
1. How are vehicles with hazardous materials secured?		
2. How are unauthorized personnel restricted from the area?		
3. How are untrained personnel restricted from area?		
Training and Personnel		
4. How are your drivers/ operators trained?		
5. How are your maintenance people trained?		
6. How are training records kept?		
7. How do you verify that personnel meet all federal requirements for handling and transporting HAZMAT?		
8. Are personnel trained in inspecting packages and recognizing suspect packages prior to accepting them for shipment?		
9. Are all personnel trained in recognizing and dealing with aberrant behavior?		

Security Checklist for the Carrier of HAZMAT (cont'd)

Question	Response	Recommendation
10. Are employee background checks being conducted??		
11. Are background checks periodically reviewed and/or updated? How often?		
Carrier Safety		
12. Do your operators/drivers carry proper identification?		
13. What procedure do you have to verify if your operator/ driver is authorized to carry HAZMAT?		
14. How is the equipment checked for safety?		
15. Are security spot checks of personnel and vehicles conducted?		
16. What monitoring and tracking equipment have you added to your fleet?		
17. What procedures are in place for safeguarding hazardous materials during en route breakdowns and/or emergencies?		
Transport		
18. Are local law enforcement familiar with what you carry?		

Security Checklist for the Carrier of HAZMAT (cont'd)

Question	Response	Recommendation
19. What procedures do you use to review a driver/operator's planned routes, layovers, and equipment changes?		
20. How does your driver/ operator verify the site is expecting a pickup or delivery?		
21. Is the driver/operator provided with a delivery point-of-contact and contact information?		
22. Do you have a way to contact the driver 24 hours a day?		
23. What procedure do you have to follow-up on the safe arrival of HAZMAT?		

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Security Checklist for the Receiver of HAZMAT

Question	Response	Recommendation
HAZMAT Storage and Handling		
1. How are hazardous materials secured and stored after receipt?		
2. Does your company protect hazardous materials using alarms and/or other security systems?		
3. How do you verify that authorized personnel are available to receive and promptly store HAZMAT?		
4. How are unauthorized personnel restricted from the area?		
5. How are untrained personnel restricted from the area?		
6. What procedure do you have to refuse receipts of suspect packages?		
7. How often is the inventory audited?		
8. What is the reporting procedure if material is missing from the inventory?		

Security Checklist for the Receiver of HAZMAT (cont'd)

Question	Response	Recommendation
9. Do your employees have a checklist for receipt and temporary storage of HAZMAT?		
10. Do they use the checklists effectively?		
Training and Personnel		
11. How are personnel trained?		
12. How are training records kept?		
13. Are handlers of hazardous materials trained in the recognition and disposal of suspect packages?		
14. Are all personnel trained in recognizing and dealing with abnormal behavior?		
15. Are employee background checks being conducted?		
16. Are background checks periodically reviewed and/or updated? How often?		
Receiving a Delivery		
17. What procedure do you have to verify if the carrier's delivery is expected?		
18. How is the carrier's identification matched to shipping records?		

Security Checklist for the Receiver of HAZMAT (cont'd)

Question	Response	Recommendation
19. How is the carrier's equipment checked for safety and security?		
Unloading and Securing Shipments		
20. What procedures do you have to verify that your HAZMAT is securely unloaded and stored?		
21. How do you notify the shipper on receipt of a shipment?		
22. What procedures are in place to inspect packages and shipping documents?		
23. How do you notify the shipper of missing or damaged items?		

U.S. Department of Transportation
Research and Special Programs Administration

Facility Security Checklist

Question	Response	Recommendation
1. Is the facility located in an area of high, medium, or low population?	H M L	
2. What is the distance to the police department and its likely response time?		
3. What is the distance to emergency response personnel/fire department and likely response time?		
4. Have you conducted a vulnerability assessment of your hazardous materials?	YES NO	
5. How many points of access are there to the facility?		
6. Do the access points have an entrance registration procedure?	YES NO	
7. Are there security personnel at the access points?	YES NO	
8. Are all entries to the facility recorded?	YES NO	
9. What are the procedures for exiting?		
10. Are all departures from the facility recorded?	YES NO	
11. Are there specific procedures for closing and locking up the facility?	YES NO	

Facility Security Checklist (cont'd)

Question	Response	Recommendation
12. Is there an alarm system on the perimeter of the facility?	YES NO	
13. Is there an alarm system on the access points?	YES NO	
14. Are cameras used to monitor the facility?	YES NO	
15. Are security personnel used to monitor the facility?	YES NO	
16. Is there adequate lighting for the facility grounds?	YES NO	
17. Is there a fence or similar barrier around the perimeter of the facility?	YES NO	
18. Is the barrier in good repair?	YES NO	
19. How easy would it be to breach the barrier?		
20. When was the last time that locks were changed?		
21. Who has keys to these locks?		
22. Is the facility security in compliance with all federal, state, and local laws and regulations?	YES NO	
23. Are security logs kept?	YES NO	
24. When was the last time security logs and/or incident reports were reviewed?		
25. Is there a current security plan and when was it last reviewed?	YES NO	

SEND COMPLETED FORM TO: The Appropriate State or EPA Regional Office.	United States Environmental Protection Agency **RCRA SUBTITLE C SITE IDENTIFICATION FORM**	

1. Reason for Submittal (See instructions on page 13.) MARK ALL BOX(ES) THAT APPLY	**Reason for Submittal:** ☐ To provide Initial Notification of Regulated Waste Activity (to obtain an EPA ID Number for hazardous waste, universal waste, or used oil activities) ☐ To provide Subsequent Notification of Regulated Waste Activity (to update site identification information) ☐ As a component of a First RCRA Hazardous Waste Part A Permit Application ☐ As a component of a Revised RCRA Hazardous Waste Part A Permit Application (Amendment #_____) ☐ As a component of the Hazardous Waste Report	
2. Site EPA ID Number (page 14)	**EPA ID Number** I___I___I___I I___I___I___I I___I___I___I I___I___I___I	
3. Site Name (page 14)	**Name:**	
4. Site Location Information (page 14)	**Street Address:**	
	City, Town, or Village:	**State:**
	County Name:	**Zip Code:**
5. Site Land Type (page 14)	**Site Land Type:** ☐ Private ☐ County ☐ District ☐ Federal ☐ Indian ☐ Municipal ☐ State ☐ Other	
6. North American Industry Classification System (NAICS) Code(s) for the Site (page 14)	**A.** I___I___I___I___I___I___I	**B.** I___I___I___I___I___I___I
	C. I___I___I___I___I___I___I	**D.** I___I___I___I___I___I___I
7. Site Mailing Address (page 15)	**Street or P. O. Box:**	
	City, Town, or Village:	
	State:	
	Country:	**Zip Code:**
8. Site Contact Person (page 15)	**First Name:** **MI:**	**Last Name:**
	Phone Number: **Extension:**	**Email address:**
9. Operator and Legal Owner of the Site (pages 15 and 16)	**A. Name of Site's Operator:**	**Date Became Operator (mm/dd/yyyy):**
	Operator Type: ☐ Private ☐ County ☐ District ☐ Federal ☐ Indian ☐ Municipal ☐ State ☐ Other	
	B. Name of Site's Legal Owner:	**Date Became Owner (mm/dd/yyyy):**
	Owner Type: ☐ Private ☐ County ☐ District ☐ Federal ☐ Indian ☐ Municipal ☐ State ☐ Other	

9. Legal Owner (Continued) Address	Street or P. O. Box:	
	City, Town, or Village:	
	State:	
	Country:	Zip Code:

10. Type of Regulated Waste Activity
Mark "Yes" or "No" for all activities; complete any additional boxes as instructed. (See instructions on pages 17 to 20.)

A. Hazardous Waste Activities
Complete all parts for 1 through 6.

Y☐ N☐ **1. Generator of Hazardous Waste**
If "Yes", choose only one of the following - a, b, or c.

☐ a. LQG: Greater than 1,000 kg/mo (2,200 lbs./mo.) of non-acute hazardous waste; or

☐ b. SQG: 100 to 1,000 kg/mo (220 - 2,200 lbs./mo.) of non-acute hazardous waste; or

☐ c. CESQG: Less than 100 kg/mo (220 lbs./mo.) of non-acute hazardous waste

In addition, indicate other generator activities.

Y☐ N☐ d. United States Importer of Hazardous Waste

Y☐ N☐ e. Mixed Waste (hazardous and radioactive) Generator

Y☐ N☐ **2. Transporter of Hazardous Waste**

Y☐ N☐ **3. Treater, Storer, or Disposer of Hazardous Waste (at your site)** Note: A hazardous waste permit is required for this activity.

Y☑ N☐ **4. Recycler of Hazardous Waste (at your site)**

Y☐ N☐ **5. Exempt Boiler and/or Industrial Furnace**
If "Yes", mark each that applies.
❑ a. Small Quantity On-site Burner Exemption
❑ b. Smelting, Melting, and Refining

Y☐ N☐ **6. Underground Injection Control**

B. Universal Waste Activities

Y☐ N☐ **1. Large Quantity Handler of Universal Waste (accumulate 5,000 kg or more) [refer to your State regulations to determine what is regulated]. Indicate types of universal mark all boxes that apply:**

	Manage
a. Batteries	☐
b. Pesticides	☐
c. Mercury containing equipment	☐
d. Lamps	☐
e. Other (specify) _____	☐
f. Other (specify) _____	☐
g. Other (specify) _____	☐

Y☐ N☐ **2. Destination Facility for Universal Waste**
Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities
Mark all boxes that apply.

Y☐ N☐ **1. Used Oil Transporter**
If "Yes", mark each that applies.
☐ a. Transporter
☐ b. Transfer Facility

Y☐ N☐ **2. Used Oil Processor and/or Re-refiner**
If "Yes", mark each that applies.
☐ a. Processor
☐ b. Re-refiner

Y☐ N☐ **3. Off-Specification Used Oil Burner**

Y☐ N☐ **4. Used Oil Fuel Marketer**
If "Yes", mark each that applies.
☐ a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner
☐ b. Marketer Who First Claims the Used Oil Meets the Specifications

11. Description of Hazardous Wastes (See instructions on page 21.)

A. Waste Codes for Federally Regulated Hazardous Wastes. Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g., D001, D003, F007, U112). Use an additional page if more spaces are needed.

B. Waste Codes for State-Regulated (i.e., non-Federal) Hazardous Wastes. Please list the waste codes of the State-regulated hazardous wastes handled at your site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed for waste codes.

12. Comments (See instructions on page 21.)

13. Certification. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.
For the RCRA Hazardous Waste Part A Permit Application, all operator(s) and owner(s) must sign (see 40 CFR 270.10 (b) and 270.11).
(See instructions on page 21.)

Signature of operator, owner, or an authorized representative	**Name and Official Title (type or print)**	**Date Signed (mm/dd/yyyy)**