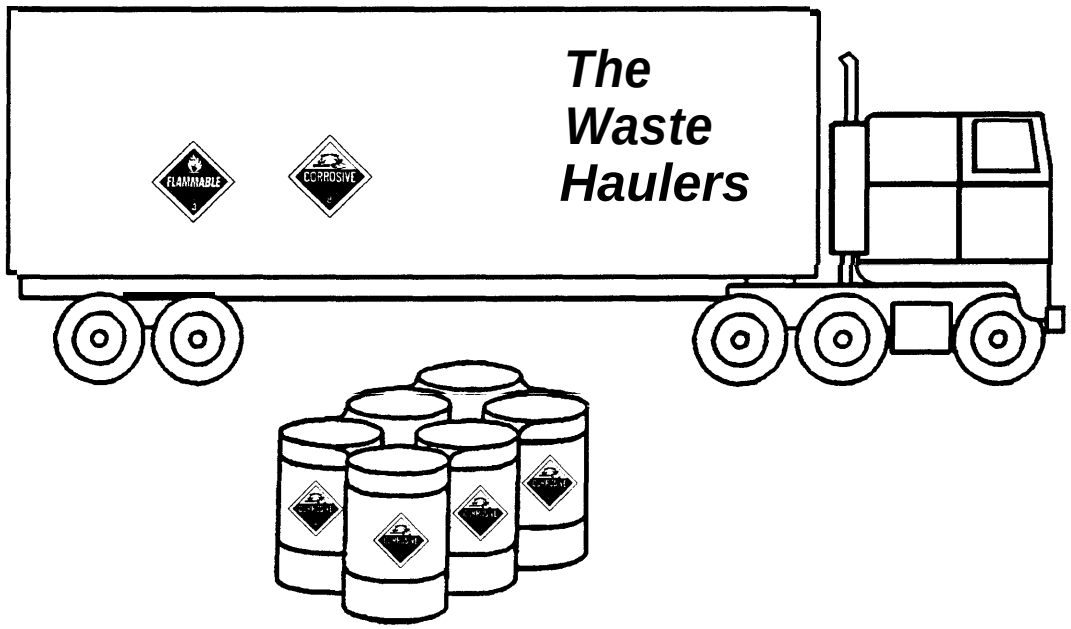
CEMP-R Engineer Pamphlet 200-1-2	Department of the Army U.S. Army Corps of Engineers Washington, DC 20314-1000	EP 200-1-2 28 April 2000
	Environmental Quality PROCESS AND PROCEDURES FOR RCRA MANIFESTING	
	Distribution Restriction Statement Approved for public release; distribution is unlimited.	

EP 200-1-2
28 April 2000

US Army Corps
of Engineers

Process and Procedures for RCRA Manifesting



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

EP 200-1-2

Pamphlet
No. 200-1-2

28 April 2000

Environmental Quality
PROCESS AND PROCEDURES FOR RCRA MANIFESTING

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 hazardous materials, Formerly Utilized Sites Remedial Action Program (FUSRAP) wastes, and other wastes commonly transported by the Corps of Engineers during site remediation.

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.

This EP supersedes EP 200-1-2 dated 31 March 1994.

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

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.

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 defers to DOT in the actual physical shipping of the wastes. The DOT has approximately 1700 pages of requirements discussing the proper shipping requirements for hazardous materials, including wastes and has requirements that each shipment be properly labeled, packaged, marked and that all transport vehicles be properly placarded. DOT and EPA regulations together form the basis for the transportation of hazardous wastes. While not hazardous wastes, EPA does require manifests for shipments of Polychorinated Biphenyls (PCBs). For asbestos, EPA requires the use of a form called an Asbestos Waste Shipping Record. For both PCBs and asbestos, the DOT requirements must be fulfilled, as both asbestos and PCBs are DOT regulated hazardous materials.

6. Updates. This document was originally published on 31 March 1994. It has been updated to include specific EPA and DOT regulatory changes. In addition, the update provided in the appendix reflects the most current USACE policy and guidance pertaining to the shipping of hazardous materials, hazardous wastes, PCBs, asbestos, ordnance and explosive wastes (OE), and low level radioactively contaminated soils from FUSRAP sites. Specifically some of the more important updates are identified below:

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

b. Extensive cross reference to the revised requirements found in EP 415-1-266, Resident Engineers Management Guide for HTRW Sites;

c. Identification of responsibilities associated with signing manifests and other shipping documents for OE sites (page A-53 of revised document);

d. Identification and explanation of the EPA Off-Site Rule (page A-55);

e. Identification of the new requirement to use a Certificate of Disposal for placement of all site remediation wastes offsite and commercial treatment, storage, or disposal facilities as per EP 415-1-266 (page A-59);

f. Identification of the new requirement to use a Chain-of-Custody example form for the offsite transportation of all FUSRAP wastes that are not EPA or DOT regulated during the course of transportation as required by EP 415-1-266 (page A-81 and A-82);

g. Identification of the new requirements to affix a non-DOT specification communication label to all shipments of FUSRAP wastes (page A-65);

h. Changes in recordkeeping requirements as per MARKS update (page A-55); and

i. Revisions to all EPA and DOT checklists (pages A-68 though A-80).

FOR THE COMMANDER:

RUSSELL L. FUHRMAN
Major General, USA
Chief of Staff

1 Appendix
App A- Process and
Procedures for RCRA
Manifesting

APPENDIX A

Process and Procedures for RCRA Manifesting

Table of Contents

Figures

Examples

Tables

List of Acronyms

CD	Certificate of Disposal
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
DER	Defense Environmental Restoration Program
DOD	Department of Defense
DOE	Department of Energy
DOT	Department of Transportation
DOT-E	DOT Exemption
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FSA	Farmer's Services Administration
FSP	Field Sampling Plan
FUSRAP	Formerly Utilized Sites Remedial Action Program
HAZMAT	Hazardous Materials
HAZWOPER	Hazardous Waste Operations and Emergency Response
HC	Hazard Class
HM	Hazardous Material
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
HW	Hazardous Waste
IAG	Interagency Agreement
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
ID number	Identification number
LDR	Land Disposal Restrictions
LLRW	Low Level Radioactive Waste
LSA	Low Specific Activity
LTD QTY	Limited Quantity
MARKS	Modern Army Record Keeping Systems
MOA	Memorandum of Agreement

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
NRC	Nuclear Regulatory Commission (when talking about radioactive materials)
NESHAPS	National Emission Standards for Hazardous Air Pollutants
OE	Ordnance and Explosives
OECX	Ordnance and Explosives Center of Expertise
ORM-D	Other Regulated Material-Consumer Commodity
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyls
PG	Packing Group
PIH	Poison Inhalation Hazard
POC	Point of Contact
POPS	Performance-Oriented Packaging Standards
PRP	Potentially Responsible Party
PSN	Proper Shipping Name
QA	Quality Assurance
QAAP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RQ	Reportable Quantity
SAP	Sample and Analysis Plan
TSCA	Toxic Substances Control Act
TSDF	Treatment, Storage, and Disposal Facility
UHWM	Uniform Hazardous Waste Manifest
UN	United Nations
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
UST	Underground Storage Tank
WSR	Waste Shipment Record

Let's get started

Whether you are remediating a Superfund site or a former 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 off-site 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) 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.

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.

- 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 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, 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 policy and regulations for shipping hazardous wastes. In addition, the guide addresses special requirements for shipping ordnance and explosive 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 correctly placard transport vehicles.

However, this is only a guidance document! It may not reflect the most current legal and regulatory requirements, as EPA and DOT publish regulations every day. 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 to 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 agency counsel and specialists in transportation and manifesting of hazardous materials.

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 hazardous chemicals.

EPA, under Title 40 of the CFR, regulates the management of hazardous wastes pursuant to RCRA. There is no way to come up with the number of wastes given the waste identification process established by RCRA and the EPA implementing regulations. You will be given more information on how to identify hazardous wastes later in this Appendix.

Responses to releases of hazardous substances are governed by the *Comprehensive Environmental Response Compensation and Liability Act* (CERCLA), 42 U.S.C. 9601, et seq.

EPA provides the list of hazardous substances in 40 CFR 302, and in the DOT regulations it is given as part of the appendix to 49 CFR 172.101.

How the above terms interact is very important. Materials are commercially useful chemicals that are being transported, typically from the manufacturer to the consumer. Wastes are solids, liquids, or gases that have been used for their intended purpose and are 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.

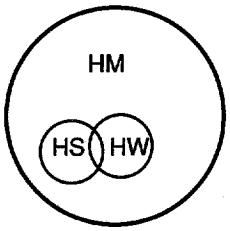


Figure A-1. Venn diagram showing how the different "hazardous" terms are related.

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.

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 off-site 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 many commercially available training courses. There are also many Government classes available. A list is given in the *I need help!* section.

What is a *Uniform Hazardous Waste Manifest*?

The tragic consequences of hazardous waste mismanagement in the past are reflected in polluted groundwater, streams, lakes, and rivers, and in areas now void of vegetation and wildlife. Improper disposal of hazardous waste on roadsides or in open fields has caused explosions and fires, contaminated underlying groundwater, and generated toxic vapors.

To prevent such tragedies, 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 that a uniform manifest document 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. Once a generator determines that a waste is hazardous, he or she must obtain an EPA identification number for each site at which hazardous waste is generated.

If the generator chooses to dispose of the hazardous waste off-site, he or she must package 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). This one-page form, with carbon copies for all participants in the shipment, identifies the type and quantity of the waste, 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.

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

The manifest must accompany the waste wherever it travels. Each individual handler of the waste must sign the manifest and keep one copy for their records. When the waste reaches its destination, the owner of that facility returns a copy of the manifest to the generator to confirm that the waste has arrived.

Please print or type (Form designed for use on elite (12 - pitch) typewriter)

Form Approved. OMB No. 2050 - 0039 Expires 9 - 30 - 91

UNIFORM HAZARDOUS WASTE MANIFEST

1 Generator's US EPA ID No. | Manifest Document No. | 2. Page 1 of | Information in the shaded areas is not required by Federal law

3. Generator's Name and Mailing Address

4. Generator's Phone ( )

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name | 6. US EPA ID Number

C. State Transporter's ID

D. Transporter's Phone

7. Transporter 2 Company Name | 8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address | 10. US EPA ID Number

G. State Facility's ID

H. Facility's Phone

GENERATOR

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.					
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by 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 national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name | Signature | Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.

Printed/Typed Name | Signature | Month Day Year

EPA Form 8700 - 22 (Rev. 9 - 88) Previous editions are obsolete.

a. First page

Figure A-2. EPA Form 8700-22, the *Uniform Hazardous Waste Manifest.*

The following statement must be included with each Uniform Hazardous Waste Manifest, either on the form, in the instructions to the form, or accompanying the form: Public reporting burden for this collection of information is estimated to average: 37 minutes for generators, 15 minutes for Treatment, storage and disposal facilities. This includes time for reviewing instructions, gathering data, and completing and reviewing the form. Send comments regarding the burden estimate, including suggestions for reducing this burden, to: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

GENERATORS

Item 1. Generator's U.S. EPA ID Number—Manifest Document Number

Enter the generator's U.S. EPA twelve digit identification number and the unique five digit number assigned to this Manifest (e.g., 00001) by the generator.

Item 2. Page 1 of —

Enter the total number of pages used to complete this Manifest, i.e., the first page (EPA Form 8700-22) plus the number of Continuation Sheets (EPA Form 8700-22A), if any.

Item 3. Generator's Name and Mailing Address

Enter the name and mailing address of the generator. The address should be the location that will manage the returned Manifest forms.

Item 4. Generator's Phone Number

Enter a telephone number where an authorized agent of the generator may be reached in the event of an emergency.

Item 5. Transporter 1 Company Name

Enter the company name of the first transporter who will transport the waste.

Item 6. U.S. EPA ID Number

Enter the U.S. EPA twelve digit identification number of the first transporter identified in item 5.

Item 7. Transporter 2 Company Name

If applicable, enter the company name of the second transporter who will transport the waste. If more than two transporters are used to transport the waste, use a Continuation Sheet(s) (EPA Form 8700-22A) and list the transporters in the order they will be transporting the waste.

Item 8. U.S. EPA ID Number

If applicable, enter the U.S. EPA twelve digit identification number of the second transporter identified in item 7.

Note: If more than two transporters are used, enter each additional transporter's company name and U.S. EPA twelve digit identification number in items 24-27 on the Continuation Sheet (EPA Form 8700-22A).

Each Continuation Sheet has space to record two additional transporters. Every transporter used between the generator and the designated facility must be listed.

Item 9. Designated Facility Name and Site Address

Enter the company name and site address of the facility designated to receive the waste listed on this Manifest. The address must be the site address, which may differ from the company mailing address.

Item 10. U.S. EPA ID Number

Enter the U.S. EPA twelve digit identification number of the designated facility identified in item 9.

Item 11. U.S. DOT Description [Including Proper Shipping Name, Hazard Class, and ID Number (UN/NA)]

Enter the U.S. DOT Proper Shipping Name, Hazard Class, and ID Number (UN/NA) for each waste as identified in 49 CFR 171 through 177.

Note: If additional space is needed for waste descriptions, enter these additional descriptions in item 28 on the Continuation Sheet (EPA Form 8700-22A).

Item 12. Containers (No. 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

DM = Metal drums, barrels, kegs
DW = Wooden drums, barrels, kegs
DF = Fiberboard or plastic drums, barrels, kegs
TP = Tanks portable
TT = Cargo tanks (tank trucks)
T = Dump truck
TC = Tank cars
CY = Cylinders
CM = Metal boxes, cartons, cases (including roll-offs)
CW = Wooden boxes, cartons, cases

CF = Fiber or plastic boxes, cartons, cases
BA = Burlap, cloth, paper or plastic bags

Item 13. Total Quantity

Enter the total quantity of waste described on each line.

Item 14. Unit (Wt./Vol.)

Enter the appropriate abbreviation from Table II (below) for the unit of measure.

Table II--Units of Measure

G = Gallons (liquids only)
P = Pounds
T = Tons (2000 lb)

Y = Cubic yards
L = Liters (liquids only)
K = Kilograms
M = Metric tons (1000 kg)
N = Cubic meters

Item 15. Special Handling Instructions and Additional Information

Generators may use this space to indicate special transportation, treatment, storage, or disposal information or Bill of Lading information. States may not require additional, new, or different information in this space. For international shipments, generators must enter in this space the point of departure (City and State) for those shipments destined for treatment, storage, or disposal outside the jurisdiction of the United States.

Item 16. Generator's Certification

The generator must read, sign (by hand), and date the certification statement. If a mode other than highway is used, the word "highway" should be lined out and the appropriate mode (rail, water, or air) inserted in the space below. If another mode in addition to the highway mode is used, enter the appropriate additional mode (e.g., and rail) in the space below.

Primary exporters shipping hazardous wastes to a facility located outside of the United States must add to the end of the first sentence of the certification the following words "and conforms to the terms of the EPA Acknowledgment of Consent to the shipment."

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.

Generators 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 certifications.

Note: All of the above information except the handwritten signature required in item 16 may be preprinted.

* * * * *

TRANSPORTERS

Item 17. Transporter 1 Acknowledgement of Receipt of Materials

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.

Item 18. Transporter 2 Acknowledgement of Receipt of Materials

Enter, if applicable, 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: International Shipments—Transporter Responsibilities.

Exports—Transporters must sign and enter the date the waste left the United States in item 15 of Form 8700-22.

Imports—Shipments of hazardous waste regulated by RCRA and transported into the United States from another country must upon entry be accompanied by the U.S. EPA Uniform Hazardous Waste Manifest. Transporters who transport hazardous waste into the United States from another country are responsible for completing the Manifest (40 CFR 263.10(c)(1)).

Owners and Operators of Treatment, Storage, or Disposal Facilities

Item 19. Discrepancy Indication Space

The authorized representative of the designated (or alternate) facility's owner or operator must note in this space any significant discrepancy between the waste described on the Manifest and the waste actually received at the facility.

Owners and operators of facilities located in unauthorized States (i.e., the U.S. EPA administers the hazardous waste management program) who cannot resolve significant discrepancies within 15 days of receiving the waste must submit to their Regional Administrator (see list below) a letter with a copy of the Manifest at issue describing the discrepancy and attempts to reconcile it (40 CFR 264.72 and 265.72).

Owners and 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 pro-

gram) should contact their State agency for information on State Discrepancy Report requirements.

EPA Regional Administrators

–Regional Administrator, U.S. EPA Region I, J.F. Kennedy Fed. Bldg., Boston, MA 02203
–Regional Administrator, U.S. EPA Region II, 26 Federal Plaza, New York, NY 10278
–Regional Administrator, U.S. EPA Region III, 6th and Walnut Sts., Philadelphia, PA 19106
–Regional Administrator, U.S. EPA Region IV, 345 Courtland St., NE., Atlanta, GA 30365
–Regional Administrator, U.S. EPA Region V, 77 West Jackson Blvd., Chicago, IL 60604
–Regional Administrator, U.S. EPA Region VI, 1201 Elm Street, Dallas, TX 75270
–Regional Administrator, U.S. EPA Region VII, 324 East 11th Street, Kansas City, MO 64106
–Regional Administrator, U.S. EPA Region VIII, 1860 Lincoln Street, Denver, CO 80295
–Regional Administrator, U.S. EPA Region IX, 215 Freemont Street, San Francisco, CA 94105
–Regional Administrator, U.S. EPA Region X, 1200 Sixth Avenue, Seattle, WA 98101

Item 20. Facility Owner or Operator: Certification of Receipt of Hazardous Materials Covered by This Manifest Except as Noted in Item 19

Print or type the name of the person accepting the waste on behalf of the owner or operator of the facility. That person must acknowledge acceptance of the waste described on the Manifest by signing and entering the date of receipt.

Items A–K are not required by Federal regulations for intra- or interstate transportation. However, States may require generators and owners or operators of treatment, storage, or disposal facilities to complete some or all of items A–K as part of State manifest reporting requirements. Generators and owners and operators of treatment, storage, or disposal facilities are advised to contact State officials for guidance on completing the shaded areas of the Manifest.

b. Instructions for completing the *Hazardous Waste Manifest*

Figure A-2 (cont'd).

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039. Expires 9-30-8[illegible]

UNIFORM HAZARDOUS WASTE MANIFEST *(Continuation Sheet)*	21. Generator's US EPA ID No.	Manifest Document No.	22. Page	Information in the shaded areas is not required by Federal law.

23. Generator's Name	L. State Manifest Document Number
	M. State Generator's ID
24. Transporter ____ Company Name / 25. US EPA ID Number	N. State Transporter's ID / O. Transporter's Phone
26. Transporter ____ Company Name / 27. US EPA ID Number	P. State Transporter's ID / Q. Transporter's Phone

GENERATOR

28. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	29. Containers No.	Type	30. Total Quantity	31. Unit Wt./Vol.	R. Waste No.
a.					
b.					
c.					
d.					
e.					
f.					
g.					
h.					
i.					

S. Additional Descriptions for Materials Listed Above	T. Handling Codes for Wastes Listed Above

32. Special Handling Instructions and Additional Information

TRANSPORTER

33. Transporter ____ Acknowledgement of Receipt of Materials		Date
Printed/Typed Name	Signature	Month Day Year
34. Transporter ____ Acknowledgement of Receipt of Materials		Date
Printed/Typed Name	Signature	Month Day Year

FACILITY

35. Discrepancy Indication Space

EPA Form 8700-22A (Rev. 9-88) Previous edition is obsolete. #1 - GENERATOR ORIGINAL COPY

Figure A-2 (cont'd). c. *Continuation Sheet.*

Instructions—Continuation Sheet, U.S. EPA Form 8700-22A

Read all instructions before completing this form. This form has been designed for use on a 12-pitch (elite) typewriter; a firm point pen may also be used—press down hard.

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

–More than two transporters are to be used;

–More space is required for the U.S. DOT description and related information in Item 11 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, this continuation sheet (EPA Form 8700-22A) for both inter- and intrastate transportation.

GENERATORS

Item 21. Generator's U.S. EPA ID Number--Manifest Document Number

Enter the generator's U.S. EPA twelve digit identification number and the unique five digit number assigned to this Manifest (e.g., 00001) as it appears in item 1 on the first page of the Manifest.

Item 22. Page —

Enter the page number of this Continuation Sheet.

Item 23. Generator's Name

Enter the generator's name as it appears in item 3 on the first page of the Manifest.

Item 24. Transporter—Company Name

If additional transporters are used to transport the waste described on this 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. Each Continuation Sheet will record the names of two additional transporters.

Item 25. U.S. EPA ID Number

Enter the U.S. EPA twelve digit identification number of the transporter described in item 24.

Item 26. Transporter—Company Name

If additional transporters are used to transport the waste described on this 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 will record the names of two additional transporters.

Item 27. U.S. EPA ID Number

Enter the U.S. EPA twelve digit identification number of the transporter described in item 26.

Item 28. U.S. DOT Description Including Proper Shipping Name, Hazardous Class, and ID Number (UN/NA)

Refer to item 11.

Item 29. Containers (No. and Type)

Refer to item 12.

Item 30. Total Quantity

Refer to item 13.

Item 31. Unit (Wt./Vol.)

Refer to item 14.

Item 32. Special Handling Instructions

Generators may use this space to indicate special transportation, treatment, storage, or disposal information or Bill of Lading information. States are not authorized to require additional, new, or different information in this space.

* * * * *

TRANSPORTERS

Item 33. Transporter—Acknowledgement of Receipt of Materials

Enter the same number of the Transporter as identified in item 24. Enter also the name of the person accepting the waste on behalf of the Transporter (Company Name) identified in item 24. That person must acknowledge acceptance of the waste described on the Manifest by signing and entering the date of receipt.

Item 34. Transporter—Acknowledgement of Receipt of Materials

Enter the same number 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.

* * * * *

OWNERS AND OPERATORS OF TREATMENT, STORAGE, OR DISPOSAL FACILITIES

Item 35. Discrepancy Indication Space

Refer to item 19.

Items L–R are not required by Federal regulations for intra- or interstate transportation. However, States may require generators and owners or operators of treatment, storage, or disposal facilities to complete some or all of items L–R as part of State manifest reporting requirements.

Figure A-2 (cont'd). d. *Continuation Sheet* Instructions.

If the waste does not arrive as scheduled, generators must immediately notify EPA or the authorized state environmental agency so that they can investigate and take appropriate action. Generators must retain copies of the manifest for 3 years after the shipment, or longer if there is a pending legal case.

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.

The manifest also fulfills all DOT paperwork requirements. The manifest functions as a DOT shipping paper.

Where can I get a Uniform Hazardous Waste Manifest?

The name *Uniform Hazardous Waste Manifest* is slightly misleading. The form itself is not a standard required form; however, the information required in the unshaded portion of the manifest is uniform. No matter which manifest form is used, the information in the unshaded part of the manifest will be uniform and identical. States may require additional information under state regulations on their own manifest.

Manifests must be obtained in a certain hierarchy under 40 CFR 262.21. The hierarchy is as follows:

- If the state to which the shipment is manifested (consignment state) has a state manifest and requires its use, then you must use that manifest. Typically, these manifests can be purchased from the state agency or ordered from the state without charge, depending on the particular state.
- If the consignment state does not have a manifest, but the state in which the generator is located (generator state) does have a manifest, then you must use that state's manifest. Typically, these manifests can be purchased from the state agency or ordered from the state without charge, depending on the particular state.
- If neither the generator nor the consignment state has a state manifest, then you can get the manifest from any source. *Uniform Hazardous Waste Manifests* can be obtained through private vendors.

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 FUDS, OE sites, and Civil Works Projects/Activities is only allowed under limited circumstances, as described below.)

Table A-1. Signature authority.

Type of Site	*Who Signs*
Active Military Facility	Military Facility Representative
Active Work for Others Site	Site Owner
Base Realignments and Closure Base	Personnel at Base
Formerly Used Defense Site	Corps of Engineers
Formerly Used Defense, Ordnance & Explosive Site	Corps of Engineers/Corps OE CX Representative
FUSRAP Site	Corps of Engineers
EPA Superfund Site	Corps of Engineers/EPA
Civil Works Project/Activity	Corps of Engineers

In the HTRW *Resident Engineers Guide*, **EP 415-1-266,** HQUSACE established procedures concerning the manifest signatory authorities.

At sites where the Corps is the owner or responsible agency, e.g., Civil Works Projects, FUSRAP (Formerly Used Sites Remedial Action Program), or FUDS (Formerly Used Defense Sites), manifests will be the responsibility of the Corps representative.

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 manifest.

For FUDS where OE (ordnance and explosives) material is to be manifested off-site, the primary responsibility for signing the shipping documents belongs to the Corps OE representative or contractor, or both. The local construction representative may sign the shipping papers if this is jointly agreed upon by that person and the Corps OE representative.

When the Corps is doing Work for Others, it is Corps policy, if requested and authorized in writing by its customers, to sign *Hazardous Waste Manifests* and related documents on behalf of those customers. So far, three customers have asked for this: the EPA, the Federal Emergency Management Agency (FEMA), and the Department of Agriculture's Farmer's Services Administration (FSA). The Corps has accepted the delegated responsibility. 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 *Hazardous Waste 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. 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.

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 Chief, Construction Division, at the executing District. For FUDS, only the approval of the Chief, Construction Division, 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 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 you obtain training when managing and transporting hazardous materials. DOT regulation 49 CFR 172, subpart H, requires people 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 be trained every 3 years. This requirement became effective 1 October 1993. Training for 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, DOD 4500.9-R, *Defense Transportation Regulation II*, Chapter 204, October 1999, requires that all employees who prepare and ship hazardous materials by commercial or military vehicle be trained every *2* years. The Corps had requested that the recurrent training requirements be changed to every 3 years to be consistent with the DOT requirement; however, the request was denied by the Military Traffic Management Command.

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 requires training for anyone who does anything related to the transportation of hazardous materials. 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 is typically training that is conducted at the facility, as it is very 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. DOD 4500.9-R provides an approved list of DOT training sources.

What level of DOT training do I need?

In 49 CFR 172.704, the DOT requires that HAZMAT employees be trained in three areas:

- General awareness/familiarization.
- Specific to their job.
- Safety.

The general awareness/familiarization training teaches the 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 their job, which might include 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.)

Since 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 and function-specific training. Many commercially available DOT courses do not address the specific requirements associated with hazardous waste and the use of a *Hazardous Waste Manifest* as a DOT *Bill of Lading*.

How do I get DOT certified?

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

While an employee will receive a certificate when he or she has completed the DOT-related training course, this is not the certification required by DOT. DOT requires that the EMPLOYER certify the employees. Thus, after the training is completed, the training certificates and perhaps a brief description of 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 this employee has been trained and is certified in accordance with 49 CFR 172, subpart H. Only Corps members formally designated and authorized by their District Commander or Deputy Commander can sign *Hazardous Waste Manifest*s and related documents. The authorization letter should also show that the individual is within his or her scope of employment when signing manifests and related documents. The nomination should further provide information that the person has satisfactorily performed as a Corps employee.

In addition to the certification requirement, there are 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 em

ployee's name; most recent training completion date; a description, copy, or location of the training materials; the name and address of person providing the training; and a copy of the certification.

Sources of training can be found in the *I need Help!* section.

How do I get an EPA Identification Number?

An EPA identification number is a unique 12-digit number assigned to each individual site. 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. Figure A-3 is a copy of this form.

Who completes and signs the *Notification Form*?

The need for an EPA identification number will depend on the type of 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 their facility. If the facility does not have a number, the facility designee should complete the forms and request one.

At a FUDS or a FUSRAP site, the Corps will have to secure the number. You should get the number during the study or design phase, as 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, as they are the owner/operator of the site.

At a Civil Works project, the project engineer or designated representative would normally complete and sign the form.

Figure A-3 shows an example EPA *Notification Form*.

SAMPLE "NOTIFICATION OF HAZARDOUS WASTE ACTIVITY" FORM*

Form Approved. OMB No. 2050-0028. Expires 9-30-88.
GSA No. 0246-EPA-OT

Please print or type with ELITE type (12 characters per inch) in the unshaded areas only

United States Environmental Protection Agency
Washington, DC 20460

EPA Notification of Hazardous Waste Activity

Please refer to the *Instructions for Filing Notification* before completing this form. The information requested here is required by law (Section 3010 of the Resource Conservation and Recovery Act).

For Official Use Only

Comments

Installation's EPA ID Number	I/A	C	Approved	Date Received (yr. mo. day)
F		1		

I. Name of Installation

GENERAL METAL PROCESSING CO

II. Installation Mailing Address

Street or P.O. Box: 501 MAIN ST

City or Town	State	ZIP Code
SMALLTOWN	VA	23000

III. Location of Installation

Street or Route Number: 501 MAIN ST

City or Town	State	ZIP Code
SMALLTOWN	VA	23000

IV. Installation Contact

Name and Title (last, first, and job title)	Phone Number (area code and number)
JONES WILLIAM MANGR	804 555 0509

V. Ownership

A. Name of Installation's Legal Owner	B. Type of Ownership (enter code)
DOE JOSEPHINE	P

VI. Type of Regulated Waste Activity *(Mark 'X' in the appropriate boxes. Refer to instructions.)*

A. Hazardous Waste Activity	B. Used Oil Fuel Activities
[X] 1a. Generator [X] 1b. Less than 1,000 kg/mo.	[ ] 6. Off-Specification Used Oil Fuel (enter 'X' and mark appropriate boxes below)
[ ] 2. Transporter	[ ] a. Generator Marketing to Burner
[ ] 3. Treater/Storer/Disposer	[ ] b. Other Marketer
[ ] 4. Underground Injection	[ ] c. Burner
[ ] 5. Market or Burn Hazardous Waste Fuel (enter 'X' and mark appropriate boxes below)	[ ] 7. Specification Used Oil Fuel Marketer (or On site Burner) Who First Claims the Oil Meets the Specification
[ ] a. Generator Marketing to Burner	
[ ] b. Other Marketer	
[ ] c. Burner	

VII. Waste Fuel Burning: Type of Combustion Device *(enter 'X' in all appropriate boxes to indicate type of combustion device(s) in which hazardous waste fuel or off-specification used oil fuel is burned. See instructions for definitions of combustion devices.)*

[ ] A. Utility Boiler [ ] B. Industrial Boiler [ ] C. Industrial Furnace

VIII. Mode of Transportation *(transporters only — enter 'X' in the appropriate box(es))*

[ ] A. Air [ ] B. Rail [ ] C. Highway [ ] D. Water [ ] E. Other (specify)

IX. First or Subsequent Notification

Mark 'X' in the appropriate box to indicate whether this is your installation's first notification of hazardous waste activity or a subsequent notification. If this is not your first notification, enter your installation's EPA ID Number in the space provided below.

	C. Installation's EPA ID Number
[X] A. First Notification [ ] B. Subsequent Notification (complete item C)	

EPA Form 8700-12 (Rev. 11-85) Previous edition is obsolete.

Continue on reverse

**Instructions for filling out this form are provided, along with the form, by EPA.*

Figure A-3. EPA Form 8700-12, *Notification of Hazardous Activities.*

SAMPLE "NOTIFICATION OF HAZARDOUS WASTE ACTIVITY" FORM*

(Continued)

ID — For Official Use Only

C													T/A	C
W														1

X. Description of Hazardous Wastes *(continued from front)*

A. Hazardous Wastes from Nonspecific Sources. Enter the four-digit number from 40 *CFR* Part 261.31 for each listed hazardous waste from nonspecific sources your installation handles. Use additional sheets if necessary.

1	2	3	4	5	6
F008	F011				
7	**8**	**9**	**10**	**11**	**12**

B. Hazardous Wastes from Specific Sources. Enter the four-digit number from 40 *CFR* Part 261.32 for each listed hazardous waste from specific sources your installation handles. Use additional sheets if necessary.

13	14	15	16	17	18
K069					
19	**20**	**21**	**22**	**23**	**24**
25	**26**	**27**	**28**	**29**	**30**

C. Commercial Chemical Product Hazardous Wastes. Enter the four-digit number from 40 *CFR* Part 261.33 for each chemical substance your installation handles which may be a hazardous waste. Use additional sheets if necessary.

31	32	33	34	35	36
37	**38**	**39**	**40**	**41**	**42**
43	**44**	**45**	**46**	**47**	**48**

D. Listed Infectious Wastes. Enter the four-digit number from 40 *CFR* Part 261.34 for each hazardous waste from hospitals, veterinary hospitals, or medical and research laboratories your installation handles. Use additional sheets if necessary.

49	50	51	52	53	54

E. Characteristics of Nonlisted Hazardous Wastes. Mark "X" in the boxes corresponding to the characteristics of nonlisted hazardous wastes your installation handles. *(See 40 CFR Parts 261.21 — 261.24)*

☒ 1. Ignitable *(D001)* ☐ 2. Corrosive *(D002)* ☐ 3. Reactive *(D003)* ☐ 4. Toxic *(D000)*

XI. Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Signature	Name and Official Title *(type or print)*	Date Signed
Josephine K. Doe	JOSEPHINE DOE OWNER	6/1/86

EPA Form 8700-12 (Rev. 11-85) Reverse

**Instructions for filling out this form are provided, along with the form, by EPA.*

Figure A-3 (cont'd). EPA Form 8700-12, *Notification of Hazardous Activities.*

Where do I start?

To ship hazardous wastes off-site, you should start planning early so you can gather the required information. 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, either through analytical laboratory analysis or by using the waste generator's knowledge.

Secondly, the *Waste Profile Sheet* must be completed. While not required by regulation, most TSDFs require a profile sheet be completed before they will accept waste into their facility. *Waste Profile Sheets* vary among TSDFs. Once the analysis is available, the contractor should get the *Waste Profile Sheet* from the TSDF and then complete the profiles. Since the *Waste Profile Sheet* is not required by regulation, anyone knowledgeable about the waste stream can sign it. Once this is done, a proper DOT shipping name can be determined. In practice, the *Waste Profile Sheets* are typically prepared by the contractor and signed by the person who signs the manifest.

What is hazardous waste?

To get started, 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. 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 the flashpoint is less than 140^{o}F (60^{o}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^{o}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 Proce

dure, 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. 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. The U-listed wastes are hazardous waste.

You should note that there are three other times when you may have a hazardous waste. First, if you have an environmental medium, such as soil or water, that contains a listed hazardous waste, then all of the medium is considered hazardous waste until it no longer contains any listed waste. This is called the "contained-in" rule. This rule 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) and (c). This rule basically states that a listed waste mixed with non-hazardous waste makes the entire mixture a hazardous waste. Lastly, there is the "derived-from" rule. This rule basically states that all residues derived from the treatment of listed hazardous waste must also be treated as the listed hazardous waste. These three principles are very difficult concepts. When confronted with these types of determinations, you should seek help from your legal counsel or regulatory specialist with classifying the waste.

Upon determining your waste codes, 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 *Hazardous Materials Table* (HMT) are hazardous if they are to be transported. For each listed material, the HMT identifies the hazard class or specifies that the material is forbidden in transportation, and gives the proper shipping name or directs the user to the preferred proper shipping name. In addition, the table specifies or references requirements for labeling, packaging, quantity limits aboard aircraft, and stowage of hazardous materials aboard vessels. There are ten columns in the HMT (Figure A-4). These columns are discussed below.

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	Non-bulk	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).

Column 1: Symbols.

Column 1 of the HMT contains six symbols (+, A, D, I, W, and G). The meaning 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 meets any other hazard class definition. An appropriate alternate proper shipping name and hazard class may be authorized by DOT.

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-1).

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.

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.

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 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 ORM-D materials (Other Regulated Material-Consumer Quantity), 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.

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).

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.

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 are 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 on board 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 to determine the DOT proper shipping name (PSN). Once the PSN is determined, deriving the basic shipping description is simple.

The first step to classify a hazardous waste is to determine whether or not the material to be shipped is actually a hazardous material. To be hazardous, the material must fall into one or more of the hazard classes and packing groups 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 Proper Shipping Name (PSN) from column 2 of the *Hazardous Materials Table* (HMT) in 49 CFR 172.101, with columns 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.

You cannot use a PSN unless it appears in the HMT!

Remember, "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 listed in the table, the material is hazardous. The major hazard classes are listed in the Table A-2.

Table A-2. Hazard classes.

Class Division	*Name of class or division*	*49 CFR Reference*
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

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 the 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 waste is to be shipped (and it does not meet any other hazard class), 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 Proper Shipping Name (PSN) of the material. This is the only 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 PSN, hazard class, identification number, and packing group of the material. These four items must appear in this order on the shipping papers.

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-gallon 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. From reading columns 3, 4, and 5, you see that the basic shipping description of the material would be “Acetone, 3, UN1090, PG II.”

However, in many instances, hazardous wastes are mixtures of materials. Then you can not use a technical name.

For a mixture or solution not identified specifically by name, 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. 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. In addition, if the material can be appropriately described by a shipping name that tells what its intended application or “end-use” is, you

should describe it that way.

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 would be 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 could be used.

The basic shipping description would be "Waste acetone solution, 3, UN1090, II."

Some mixtures may be more appropriately described according to their application, "use" or "end-use," such as "Coating solution" or "Extracts, flavoring liquid." In these cases, 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-gallon 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 an ignitable waste as those wastes with a flash point of less than 140°F. So, the waste code for this mixture would be 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 would be "Alcohols, n.o.s." Thus, the PSN would be "Alcohols, n.o.s." and the basic shipping description would be "Waste alcohols, n.o.s., 3, UN1987, PGII (methanol, ethanol)."

Example A-4. Determining generic proper shipping names.

A 55-gallon 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 an ignitable waste 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. Since 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 "Waste Flammable Liquids, n.o.s., 3, UN 1993, I (acetone, toluene)."

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 an ignitable waste 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 definition in 49 CFR 173.137, you can further see that the waste also meets the definition of HC 8, PG II, a corrosive material. Since this is a mixture of two hazardous materials of different hazard classes, the precedence table (Table A-3) in 49 CFR 173.2a(b) must be used to determine the PSN.

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

Table A-3. Precedence of hazard table.

		Hazard class and packing group														
		4.2	4.3	5.1 1*	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	—	—	—	—	—	3	3	3	3	3	**	3	**	3	**
3	II	—	—	—	—	—	3	3	3	3	8	**	3	**	3	**
3	III	—	—	—	—	—	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
4.3	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

* There are at present no established criteria for determining Packing Groups for liquids in Division 5.1. For the time being, the degree of hazard is to be assessed by analogy with listed substances, allocating the substances to Packing Group I, great; II, medium; or III, minor danger.

† 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.

You should describe a mixture or solution not identified in the HMT specifically by technical name, “use,” or “end-use,” 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, hazard zone, 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.

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-3). 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.”).

There may be times when you need to modify a proper shipping name because it is necessary or authorized. 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 capital or lower case letters.

Words may be alternatively spelled in the same way as they appear in the 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. However, the order in which they are found in the HMT is the preferred sequence.

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 included 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 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 send 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 should 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.

What is a hazardous substance?

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

- Is listed in the 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.

The term 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, 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 AND be in a quantity per package equal to or greater than that shown as the reportable quantity (RQ).

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

You are preparing to transport one 55-gallon drum of pure acetone. Do you have an RQ of acetone?

Appendix A to the 49 CFR 172.101 shows that the RQ for acetone is 5000 lb (2270 kg). Because the drum only contains about 50 gallons at 8 lb/gal = 400 lb, you do not have an RQ.

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). Since a drum weighs approximately 400 lb, a 50% mixture would have approximately 200 lb of acetone and 200 lb of trichloroethene. Since the RQ for trichlorethene has been exceeded, the material must be shipped as a hazardous substance.

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, since, typically, not all components of the waste are known.

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

One 55-gallon drum of a waste acetone solution is to be sent off-site for incineration. The mixture has a flash point of 0^{o}F.

The waste code is D001. The RQ for D001 is 100 lb (45.4 kg). While the RQ for acetone is 5000 lb (2270 kg), the contaminated acetone solution is ignitable, and the RQ is only 100 lb.

If the material being shipped does not meet any hazard class but is a hazardous substance, 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 to 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 which equals or exceeds:

- Ten percent by weight of the solution or mixture for materials listed in the 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. Also, 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 to be 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 which, 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, which causes extreme irritation, especially in confined spaces.

If a liquid or solid material in a package meets the definition of a Division 6.1, Packing Group I or II poison, and if the fact that it is a poison is not disclosed in the shipping name or class entry, you must enter the words "Poison" or "Toxic" on the shipping paper along with the shipping description. In addition, if the technical name of the compound or principal constituent that causes a material to meet the definition of Division 6.1, Packing Group I or II or Division 2.3 is not included in the proper shipping name for the material, you must enter the technical name on the shipping paper.

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 box 11 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).
(2) Hazard class from column 3 of the HMT.
(3) Identification number from column 4 of the HMT.
(4) Packaging group from column 5 of the HMT.
(5) Total quantity of materials.
(6) Emergency response contact and phone number.
(7) Shipper's certification as found in 49 CFR 172.204(a).
(8) Additional requirements as appropriate (49 CFR 172.203).

(a) Exemptions, enter DOT-E-XXXX.
(b) Limited quantities, enter "Limited Quantity" or "LTD QTY."
(c) Hazardous substances, enter "RQ."
(d) Radioactive materials, enter the radionuclide, physical and chemical form, activity, category of label, transport index, fissile, DOE package, foreign made packages.
(e) Empty packaging—"Residue: Last Contained."
(f) Transported by air "Cargo Aircraft Only" if prohibited on passenger aircraft.
(g) Rail shipments.
(h) Vessel shipments.
(i) "Dangerous When Wet."
(j) "Poison" or "Poison Inhalation Hazard."
(k) "Marine Pollutant."

(9) Items 1–4 must be in sequence.

What paperwork actually accompanies the shipment?

There are two documents that must accompany all shipments of hazardous wastes: a manifest, and a land disposal restriction (LDR) notification.

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

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

In practice, there will also be a *Waste Profile Sheet* accompanying the manifest and LDR documentation. The contractor will get the *Waste Profile Sheets* from the TSDF. Each disposal facility has its own version of the profile. There is no required EPA form.

Must I provide any emergency information?

Yes. No person may offer for transportation, accept for transportation, transfer, store, or otherwise handle during transportation a hazardous material unless emergency response information is immediately available and there is an emergency response telephone number provided on the shipping papers.

The following basic 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* is used to fulfill this requirement when shipping hazardous wastes. The appropriate guide number is noted on the manifest. A copy of the ERG can be found on the internet at http://hazmat.dot.gov/gydebook.htm.

A person who offers a hazardous material for transportation must provide a 24-hour emergency response telephone number (including the area code or international access code). The telephone number must be monitored at all times that the hazardous material is being transported, including storage during transportation. This must be the number of a person who is either knowledgeable about the hazardous material being shipped and who knows how to respond to an emergency, or who has immediate access to a person who has this knowledge and information. You must put this emergency number on the shipping papers.

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.”

For wastes that are restricted, EPA set either concentration-based levels or technology-based standards for each. 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 technologies in the regulations, it can be disposed of on or into the land without further analysis or treatment in a non-hazardous-waste landfill. For contaminated soils, the alternative LDR standards are given in 40 CFR 268.49.

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 package hazardous materials?

A package means a 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 is not a bulk package.

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) that goes with the PSN. Column 8A gives exceptions to packaging requirements, such as limited quantities. Column 8B tells you non-bulk packaging requirements and will refer you to a citation, such as 202. Viewing the column heading, you see that you will have to refer to 49 CFR 173.202. Reviewing the appropriate CFR section will provide you with the appropriate packaging specifications. Column 8C will tell 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 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 is the proper outer packaging, with an inner packaging of plastic or glass receptacles.

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

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

- Maximum allowed in the package is 66 lb (30 kg) gross weight.
- Container must be marked "LTD QTY."
- Shipping papers must accompany shipment and indicate a LTD QTY.

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, PG II. The packaging exceptions would be found in 49 CFR 173.150. The non-bulk packaging requirements are found in 49 CFR 173.202. Since only 1/2 L of acetone is to be shipped, 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 would be found in 49 CFR 173.202(b) or (c). The 1/2 L could be sent in a fiberboard box 4G with an inner glass receptacle.

Limited quantities of hazardous materials are excepted from labeling, placarding, package specification requirements, and performance-oriented packaging standards (POPS) test requirements.

Small quantities of class 3, 4.1, 5.1, 5.2, 8, 6.1, 7, and 9 materials may be shipped if the:

- 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.

Materials that cannot be excepted from packaging are 4.1, PG II materials, 5.1, PG I materials, 6.1, PG I or PG II materials, and 8, PG I materials.

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:

- Do everything necessary to bring a package into compliance.
- Ensure that, under normal transportation conditions, the package does not break open or leak.

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.
- The corresponding identification number found in column 3 of the HMT.
- The name and address of the consignee or the consignor.
- 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.

Exemption packagings

If the outside of each package is authorized by an exemption, mark the container "DOT-E," followed by the exemption number found in 49 CFR 172.301(c).

ORM-D

ORM-D materials must be marked with the PSN "Consumer Commodities" 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, explosives must be marked with an "EX-number" for each substance, article, and device in the container.

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.

Class 7 radioactive

Packages of Class 7 materials must be marked with the gross weight if they exceed 110 lb (50 kg) of type A or B.

Hazardous substances

If the material is a regulated hazardous substance, the letters "RQ" must be marked on each non-bulk package along with the PSN.

Inhalation hazard

The words "Inhalation Hazard" must be marked on any package of liquid Division 6.1, PG I hazardous materials or hazardous materials with special provisions 1, 2, 3, 4, 5, 6, or 13.

Marine pollutant

The marine pollutant marking must be used as required in 49 CFR 172.322 for bulk packages shipped by any means and on non-bulk packages shipped by vessel. Transport vehicles containing bulk packages must also be marked.

Overpack marking

For each overpack used to enclose "Specification Packages" and for any packages where markings are not completely visible, the overpack must be marked "Inner Packages Comply with Prescribed Specifications."

Hazardous wastes

40 CFR 262.32 requires that packages of hazardous waste be marked with the EPA warning, manifest document number, and generator information. Typically, a yellow hazardous waste label has all the required information.

Specification packaging marks

If specification packaging is required by the instructions, the package must be marked with the specification marking as shown in Figure A-5.

To determine the proper non-bulk POPS marking, you must first review the HMT column 8B associated with the PSN. Column 8B will refer you to a citation, such as 212. Viewing the column heading, you will have to refer to 49 CFR 173.212. 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 a 4G (see Figure A-5).

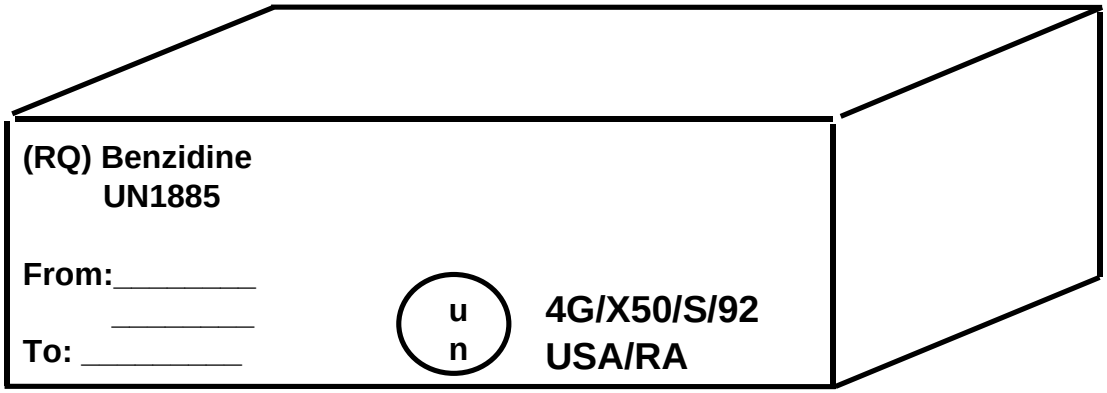


Figure A-5. Marking the package.

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.

Example A-12. Determining UN specification markings.

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

U 4G/X50/S/92
N USA/RA

A 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 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.

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 PIHs (Poison Inhalation Hazards) 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:

- *Primary hazard labels*. These labels are diamond shaped with the class or division number (Figure A-6).
- *Subsidiary risk labels*. Generally diamond shaped with no class or division number.
- *Handling labels*. Typically not diamond shaped. Includes labels such as "Dangerous When Wet," "Keep Away From Food," 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 lists the appropriate label corresponding to the PSN. 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. The primary hazard label would include the hazard class or division number. The subsidiary hazard label does not include the number. All labels must be placed close to each other, yet not overlap physically.

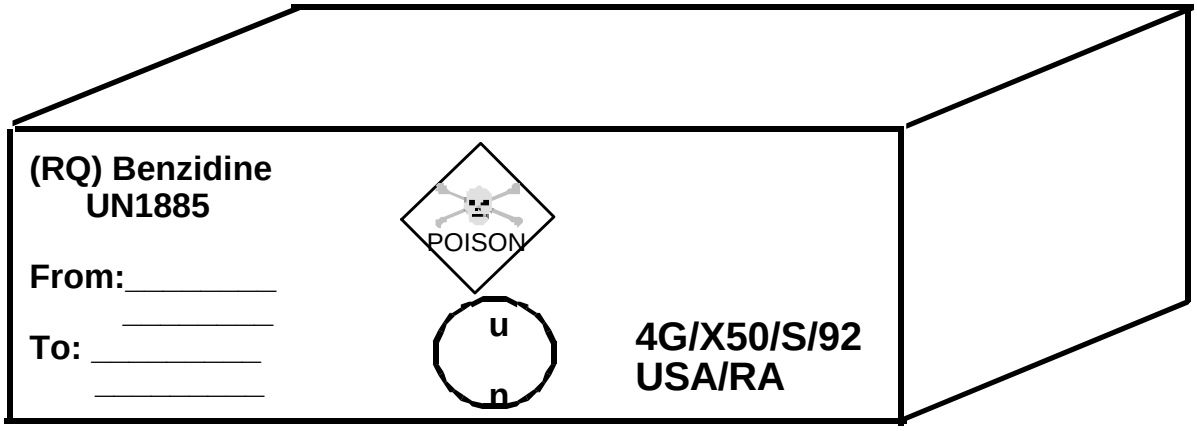


Figure A-6. Label example.

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 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 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?

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 give you 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 the 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 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 shipper 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, a subsidiary hazard placard of CORROSIVE is required on fissile or low-specific-activity uranium hexafluoride.

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 a 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 would determine that POISON INHALATION HAZARD placards are required for any amount of this hazardous material.

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. Since acetone is flammable, you should also offer FLAMMABLE placards. But because less than 1001 lb (454 kg) of acetone was loaded, the transporter would not have to placard the vehicle FLAMMABLE since FLAMMABLE is a Table 2 placard requirement.

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

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

Table 2 tell you that because more than 1000 lb (454 kg) of both a flammable and corrosive are being offered, you must provide both FLAMMABLE and CORROSIVE placards. Since more than 2205 lb (1000 kg) of one HC was loaded at one facility, the transporter is not allowed to decide to use the DANGEROUS instead of the FLAMMABLE and CORROSIVE placards.

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

Could the transporter use a DANGEROUS placard for 6000 lb (2727 kg) of acetone loaded at one facility and 1200 lb (545 kg) of formic acid loaded at another facility?

No, the transporter would have to use the FLAMMABLE placard because over 5000 lb of a flammable was loaded at one facility. Also, since over 1000 lb (454 kg) of a corrosive was loaded at one facility, the CORROSIVE placard must also be used.

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. The EPA requires the use of an *Asbestos Waste Shipment Record* (WSR) or a similar form when you ship asbestos-containing materials. Figure A-7 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 block 5 of the form and the DOT-required emergency response information is added to the form.

While asbestos is not a RCRA hazardous waste, 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 NESHAPs (National Emission Standards for hazardous Air Pollution) 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.

What is so special about PCBs?

Polychlorinated biphenyls (PCBs) may or may not be regulated as a hazardous material by DOT. DOT regulates PCBs when they are shipped:

- By air or water.
- When they are mixed with a hazardous waste.
- When they are a hazardous substance (in an amount equal to or greater than the reportable quantity).

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-7. ***Asbestos Waste Shipment Record.***

EPA requires a manifest for shipping PCBs when:

- PCB is subject to TSCA disposal requirements in 40 CFR 761 subpart D (i.e., PCBs greater than or equal to 50 ppm).
- PCB waste is below 50 ppm as a result of dilution.

When PCBs are shipped by air or water, or mixed with a hazardous waste, the appropriate shipping description may be "Polychlorinated biphenyls, 9, UN2315, PG II."

When a reportable quantity of PCBs is shipped, one of the following basic shipping descriptions may be used:

- RQ, Polychlorinated biphenyls, 9, UN2315, PG II.
- Environmentally hazardous substances, liquid, n.o.s., 9, UN3082, PG III (PCBS) RQ.
- Environmentally hazardous substances, solid, n.o.s., 9, UN3077, PG III (PCBS) RQ.

If the PCBs are to be shipped on the highway, they are not mixed with a hazardous waste, and there is no reportable quantity in the container, DOT does not regulate this shipment. However, if the material is 50 ppm or greater PCB, EPA will still require a manifest to be completed for the shipment. As referenced in the *Federal Register* dated 21 December 1989, EPA requires that the assigned shipping name under this circumstance be "PCBs" or "Polychlorinated Biphenyls."

PCBs are regulated Federally by the EPA under the *Toxic Substances Control Act* (TSCA), 15 USC 2601-2692. PCBs are required to be manifested in accordance with 40 CFR 761.207. A *Uniform Hazardous Waste Manifest* must be completed when you ship PCBs. Generators must use a state manifest, if available, or an EPA *Uniform Manifest* if no state manifest is available. (Same rules as for RCRA manifests.)

Several additional pieces of information are required 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 received 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* 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.

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, a NRC *Uniform Low-Level Radioactive Waste Manifest* (Forms 540 and 541) must be used. This manifest would fulfill the DOT shipping paper requirements as well as the NRC requirements.

If the material to be disposed of is also a hazardous waste, a state or EPA *Uniform Hazardous Waste Manifest* must be used in addition to the NRC manifest. BOTH manifests must be used. If the material is a hazardous waste, but not NRC regulated, then only a *Hazardous Waste Manifest* would be needed.

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 *Bill of Lading* can be used.

Recycling/disposal facilities may require 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. An example is provided on pages A-81 and A-82.

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 HTRW CX prior to shipment. This is strictly for record keeping. Figure A-8 shows the notification requirements found in the memorandum.

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

USACE Notification for Disposal of Radioactive Material or Waste

Submit this notification request for disposal of radioactive material or waste to HTRW-CX, CENWO-HX, 12565 West Center Road, Omaha NE 68144-3869 Fax 402-697-2595. When appropriate this is information will be forwarded to the Department of Defense Executive Agent for coordination and/or waiver authorization.

Following Information Reviewed By: _____ Date: _____

Job/Project Name:

JOB/PROJECT INFORMATION

_____

Site Location: _____ Site Name:

_____

Requesting POC: Name: _____ Organization:_____

Phone #: _____ Fax #: _____ E-mail:_____

Installation Name: _____

Organization:_____

Installation POC: _____ Phone #: _____ Fax #:_____

DISPOSAL INFORMATION

Originating State:_____ Compact: _____ Compact Notified: Yes No

Compact POC:_____ Phone #:_____ Fax #:_____

Disposal Facility: _____

Disposal POC:_____ Phone #:_____ Fax #:_____

Transportation Method:_____

Transport Company Name: _____

Transport POC:_____ Phone #:_____ Fax #:_____

MATERIALS/WASTE INFORMATION

Mixed Waste Present: Yes No Waste Profiled Yet: Yes No

Description of Waste/Profile:_____

Total Volume of Material or Waste in CU FT:_____Estimated Disposal Cost:_____

Type of Containers	Number of	Radionuclides of Concern	Activity Per	Physical and/or Chemical

___ See attached for add'l container information. ___See attached manifest.

For HTRW-CX Use
Type of Request: Information Waiver

Reviewed By HTRW-CX: _____ Date: _____

Comments:_____

Forwarded to DoD Executive Agent: Yes No Date:_____

The following action will be completed by DoD Executive Agent and copies provided to requesting POC and HTRW-CX within 10 days.
Action by DoD Executive Agent: _____

Signature: _____ Date: _____

Figure A-8. Corps of Engineers notification for disposal of radioactive waste.

EP 415-1-266 identifies additional guidance for shipping of 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.

Do I need a manifest for shipping ordnance and explosives?

The majority of OE wastes are destroyed at the site where they are discovered. However, on occasion, the OE must be transported off-site 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.

If you find that the material is a hazardous waste, a *Uniform Hazardous Waste Manifest* will be necessary. You will have to determine a PSN and complete the manifest to comply with all EPA and DOT requirements. In addition, there are specific requirements pertaining to the movement of OE in the *Defense Transportation Regulation*, Part II, DOD 4500.9-R. You must comply with all requirements.

If the OE does not meet the definition of a hazardous waste, it is still 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.

What are my responsibilities when I sign a manifest?

When you sign a 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 171–180. If you sign 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 a manifest when transporting 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 was not returned by the 35th day, you or the generator must check on the status of the shipment. If by the 45th day the manifest is not returned, an *Exception Report* must be filed.

The *Exception Report* must include at a minimum:

- A legible copy of the manifest for which the generator has not received confirmation.
- A 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 requirements.

What are my responsibilities as a construction representative?

If you are the construction representative responsible for signing the 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.

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-9 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-9. 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 Contingency Plan* (NCP). That requirement is the "Off-Site Rule," found at 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 off-site, 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 site (Superfund, FUDS, FUSRAP, BRAC, IRP, etc.) EPA has published an informative pamphlet entitled *Sending Wastes Off-Site? OSC and RPM Responsibilities Under the Off-Site Rule* (PB 97-963402, September 1997). This publication is available through the EPA Hotline (1-800-424-9346).

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 off-site, the EPA regional point of contact (POC) be called to verify the facility status. The Regional POCs can be obtained from the EPA Hotline (1-800-424-9346). While 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 Corps requires that all waste identification, tracking, and disposal records be maintained permanently. MARKS 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. It is imperative that the contract under which the work is being done contain supporting chemistry-related requirements and procedures to aid in properly completing the paperwork. These items are imposed by the specifications and addressed by the contractor in a document known as the *Chemical Data Acquisition Plan*. These plans are site-specific guidance for sampling and analyses. These items are imposed by the specifications and addressed by the contractor in a document known as the *Sampling and Analysis Plan* (SAP). The plan, which is composed of two parts—the *Field Sampling Plan* (FSP) and the *Quality Assurance* (QA) *Project Plan* (QAPP)—defines the field activities, including all requirements for sampling, field documentation, on-site technical analysis, sample packaging, and shipping, etc. The plan also defines the laboratory analytical and chemical data reporting requirements and specifies the sampling and analysis for evaluating the project's success and the quality control (QC) and QA sampling required. The project specific supplement to the *QA Plan*, developed by the Resident Engineer must define the Corps quality assurance role in the manifesting process.

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

What are the spill reporting requirements?

There are several environmental regulations that require notification of certain offices of spills or releases. Furthermore, this is one area where many states require immediate notification. This section deals with only the Federal requirements. Spill reporting requirements for specific states should be verified with the Office of Counsel.

CERCLA requires that anyone in charge of a vessel or an offshore or onshore facility must, as soon as he or she has knowledge of any release (other than a Federally permitted release or application of a pesticide) of a reportable quantity of a hazardous substance, immediately notify the National Response Center (40 CFR 302.6). In the real world, this may mean that the construction representative, project engineer, or contractor is responsible for reporting the spill. Agency counsel should be consulted to determine responsibilities and reporting requirements.

The DOT requires that the following spills be immediately reported to the National Response Center at (800) 424-8802 or (202) 267-2675:

- Spills involving death, injury, or property loss in excess of $50,000.
- Spills where the general public was evacuated for an hour or more.
- Spills where the operational flight plan of an aircraft was altered.
- Spills where one or more major transportation arteries was shut down for 1 or more hours.
- Spills involving radioactive materials or etiologic (infectious) agents.
- Spills that, in the judgment of the carrier, should be reported owing to the nature of the situation.

Notice of releases of etiologic agents may be given to the Director, Center for Disease Control, U.S. Public Health Service, at (404) 633-5313, in lieu of the National Response Center.

49 CFR 171.16 further requires the submittal of a written report within 30 days for:

- Any spill identified above.
- Any release of any amount of a hazardous material from its package.
- The release of any amount of a hazardous waste.

In addition, Corps HTRW spill policies and procedures are outlined in the CEMP-RT memorandum *Spill Reporting Procedures for USACE Personnel Involved in HTRW Projects*, dated 20 July 1995. This memorandum is available on the internet at http://www.environmental.usace. army.mil/info/technical/comply/complys/spill.pdf. District offices must coordinate spill reporting procedures through their Emergency Operations Center in accordance with ER 500-1-1, and notify command and counsel offices of the spill and response actions.

What are the liabilities associated with transporting hazardous materials?

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 since 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.

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. Furthermore, it also exempts Federal employees acting within the scope of their official duties from personal liability for civil penalties.

However, Federal employees are still subject to any criminal sanctions, including imprisonment or fines, imposed under Federal or state solid or hazardous waste laws.

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. 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.

Some commonly asked questions and answers

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

No. The facility designated in block 9 of the manifest may be a RCRA permitted treatment, storage, *or* disposal facility.

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

While many people say that the manifest is a “cradle to grave” tracking form, that is not exactly accurate. The manifest tracks the waste from the generator to the TSDF identified in box 9. As discussed above, the TSDF does not have to be a 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 their 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.

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 a *Hazardous Waste Manifest*, it is difficult to track ultimate disposal. When wastes are disposed of using a form other than a *Hazardous Waste Manifest*, such as an *Asbestos Waste Shipment Record* or a *Bill of Lading*, 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 will be included in the revised *Transportation and Disposal Guide Specification*, CEGS 02120.

Is there a Corps guide specification related to manifesting?

The HTRW CX has prepared an excellent guide specification for transporting and disposing of hazardous materials. Guide Specification CEGS 02120 can be found on the Internet at http://www.usace.army.mil/inet/usace-docs/.

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

Anyone that has been DOT trained may sign a DOT *Bill of Lading*. Typically, Corps contracts should require the contractor to sign the *Bill of Lading* as prescribed in CEGS 02120.

DOT requires a 24-hour emergency telephone number monitored at all times. Do I have to carry a cell phone?

No. However, 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.

Do I have to use an Asbestos Waste Shipment Record*?*

No. EPA requires a form similar to the *Waste Shipment Record*. This can be a *Hazardous Waste Manifest* or a DOT *Bill of Lading*. However, EPA requires certain information, so if a *Bill of Lading* or a manifest is used to transport asbestos, addition information required under 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 since I won't be signing a Hazardous Waste Manifest*?*

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 wastes off-site, a DOT shipping document is still needed. To prepare this shipment or to sign the form, DOT training is 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 a *Hazardous Waste Manifest* and the DOT regulations in one training course.

We arrange for recycling of our solvents. As they do not use a manifest for the solvents they take, 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, in order to sign any paperwork or to mark or label the drum, you must be DOT trained.

Who signs the manifest at FUSRAP sites?

In the past, FUSRAP contractors were signing manifests and other shipping documents on the Government’s behalf. This will change as new contracts are awarded by the Corps and as Corps members receive the appropriate training necessary to assume these responsibilities. For FUSRAP sites, all manifests will be signed by authorized Corps personnel. EP 415-1-266 outlines these requirements.

Who signs the manifest when OE is sent off-site?

If the OE CX is on-site doing the work, a representative of the OE CX or their contractor will sign all documents. If agreed to by the OE CX 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, as they are familiar with the waste stream, they have been trained, and do have 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 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 a *Hazardous Waste 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 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.

Is a manifest required for shipping asbestos?

No. A *Waste Shipment Record* 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?

Not under Federal regulation. Under Federal regulation, you can place "40 CFR PART 761" in block no. 1 of the manifest in accordance with 40 CFR 761.205. States that regulate PCBs as hazardous waste may require a specific EPA identification number.

Do land ban records need to accompany a manifest when I am shipping PCBs off-site?

No. If the waste is strictly PCB dielectric fluid, 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 their 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. Since 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 very possible. An EPA ID number is needed for each site. A 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." If your contractor is picking up waste from three different sites, he may need three different manifests with three different

EPA numbers.

What additional information is always required on a manifest?

Though there is no block on the *Uniform Hazardous Waste Manifest*, 49 CFR 172 Subpart G requires the following information: emergency point of contact, emergency telephone number, *Material Safety Data Sheet* or *Emergency Response Guide Number*, and *Emergency Response Guide* publication date.

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

No. There may be occasions when the materials being sent off-site are not a hazardous waste 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 may use a *Bill of Lading* in place of a manifest.

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.

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

Yes. 40 CFR 761.207 requires that the weight of the PCBs be in kilograms, the date removed from service, and a unique identifying number be placed on the manifest. Also, 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*. 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 are also hazardous materials.

What is a hazardous substance?

Hazardous substances are defined in CERCLA and listed in 40 CFR 302. Certain requirements, such as release notification, only apply if the material is in a quantity above the limits stated in the table in 40 CFR 302. This is the “Reportable Quantity,” or RQ for each

listed hazardous substance.

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 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.

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 MARKS system requires that these documents be permanently maintained.

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

Generators must retain on-site a copy of all notices, certifications, demonstrations, waste analysis data, and other documents produced pursuant to 40 CFR 268.7(a)(7) for at least 3 years.

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 training requirements?

49 CFR 172, Subpart H, requires training for employees involved in transporting hazardous materials. This DOT regulation requires a refresher every 3 years; however, DOD requires a refresher every 2 years.

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 HTRW 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 HTRW CX.

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

In addition to the DOT markings and labels, the Corps requires that a specially designed label be placed on all containers of FUSRAP waste, regardless of whether the material is a hazardous material or not. The label will give the disposal/recycling facility destination and the telephone number of a Corps POC with knowledge of the contents. This additional label 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 in.) with the custom information may be purchased

at a minimal cost when they are purchased in bulk quantities. Several highly visible labels would be placed on top of the container liner (e.g., burrito bags in 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-10.

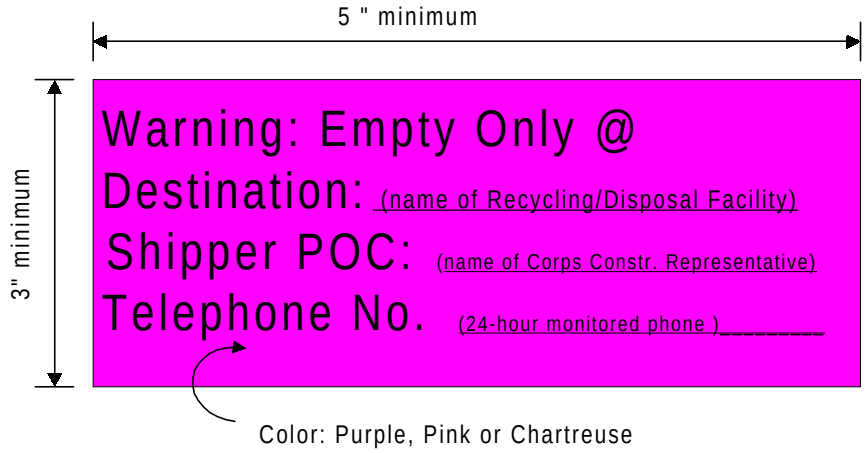


Figure A-10. Example of Corps-required FUSRAP label.

I need help!

The following pages provide information to assist the shipper.

Important Sections of 49 CFR (1999)	
Subject	**49 CFR Reference**
Exemptions	107
General Definitions	171.8
HMT Information	172.101
HMT	172.101
Hazardous Substance Table (Appendix to HMT)	172.101 (Appendix)
Special Provisions	172.102
Shipping Papers	172.200
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 Packing 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)	173.403
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.

Type of hotline	Agency	Telephone
Spill reporting	USCG	(800) 424-8802
Chemical emergencies	CHEMTREC	(800) 424-9300
RCRA	EPA contractor	(800) 424-9346
Transportation	DOT	(202) 366-4488
HTRW Center of Expertise	USACE	(402) 697-2562 (402) 697-2559 (402) 697-2634

Useful Web Sites	Address
HTRW CX	http://www.environmental.usace.army.mil/
USACE Construction Bulletins	http://www.hq.usace.army.mil/CEMP/C/2library.htm
USACE Publications	http://www.usace.army.mil/inet/usace-docs/
DOTHAZMAT	http://hazmat.dot.gov/
EPA Regulations	http://www.epa.gov/docs/epacfr40/chapt-I.info/
EPA	http://www.epa.gov/
DENIX	http://osiris.cso.uiuc.edu/denix/denix.html

There are many training courses available. This is a list of just a few. This list in no way is intended to endorse any vendor or course.

Name of Course	Vendor	Telephone
Hazardous Waste Management and Manifesting Manifesting	PROSPECT no. 223	(256) 895-7448
Hazardous Waste Management and Manifesting Refresher	PROSPECT no. 429	(256) 895-7448
Transportation of Hazardous Materials and Waste	DOT Transportation Safety Institute	(405) 954-4472
Radioactive Waste Packaging, Transportation, and Disposal	PROSPECT taught by ChemNuclear	(256) 895-7448

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

- ❑ Review manifest. Have all unshaded areas been completed?
- ❑ Has the disposal state's manifest been used? If not, has the generator's state manifest been used?
- ❑ Have you reviewed the laboratory analyses?
- ❑ Is the "Proper Shipping Name" (PSN) correct?
- ❑ Verify the basic shipping description for the PSN through the DOT HMTs. Is it correct?
- ❑ Have "RQ" values been calculated and indicated where appropriate?
- ❑ Are all applicable listed and characteristic waste numbers shown?
- ❑ Have all POISON–INHALATION HAZARD wastes been shown where appropriate in the basic shipping description? You must use new communications standards for shipments of POISON–INHALATION HAZARDS chemicals.
- ❑ Is the hazardous material a Marine Pollutant?
- ❑ If hazardous and non-hazardous wastes are being shipped on the same manifest, are the hazardous wastes highlighted and listed first?
- ❑ If any of the wastes require special handling instructions, are these instructions listed in number 15? (DANGEROUS WHEN WET, POISON–INHALATION HAZARD, etc.)
- ❑ Is an emergency name and telephone number listed and highlighted on the manifest?
- ❑ Did you enclose the proper *Emergency Guides* with the manifest, or did you indicate the guide number on the manifest if the driver has his own guide?
- ❑ 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?

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 262.10
❑ 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 Subpart C
❑ If not, is there a chemical class, use, or end use name?	49 CFR 172.203(k)(3)
❑ If not, is there a generic n.o.s. shipping name that can be used given the hazard class and packing group of the material/waste?	49 CFR 172.203(k)(3)
❑ 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)(3)
❑ 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)(2)

Once the proper shipping name (PSN) is determined, look up the name in the HMT and determine the associated:

❑ Hazard class	HMT Column 3
❑ Identification number	HMT Column 4
❑ Packing group	HMT Column 5

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

Shipping Paper Checklist	Reference
❑ Determine the modes of transportation by which the material/waste is not regulated.	HMT Column 1
Include in the Basic Shipping Description: ❑ Proper Shipping Name (PSN). ❑ Hazard Class. ❑ Identification number. ❑ Packing Group. Sequence must be in that order.	49 CFR 173.22
Include a (constituent) if: ❑ Generic n.o.s. shipping name is used. ❑ Constituent that is the RQ is not included in the PSN. ❑ Constituent that is the Marine Pollutant is not in the PSN. ❑ Constituent that is the Poison is not included in the PSN.	49 CFR 172.202(k)
❑ If the material is a RCRA waste, add the word "Waste" in front of the PSN.	49 CFR 172
❑ 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)(3)
❑ Determine if the material is a Poison. If so, add the word "Poison" or "Toxic" to modify the Basic Shipping Description.	49 CFR 172.203(m)

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

Shipping Paper Checklist (cont'd)	Reference
❑ Determine if the material is DANGEROUS WHEN WET and add those words to the shipping paper if necessary.	49 CFR 172.203(j)
❑ Is the shipment being made under an exemption? If yes, exemption 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? Then you must include: ❑ Words "Radioactive Material"" unless in the PSN. ❑ Name of each radionuclide. ❑ Description of physical and chemical form. ❑ Activity. ❑ Label. ❑ Transport Index. ❑ Words "Exclusive use" as applicable. For Fissile materials there are more extensive requirements. ❑ For LSA and SCO materials, include the appropriate group.	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)
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

	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

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 number on the package.	49 CFR 172.301(a)(1)
❑ If waste, add the word "waste."	49 CFR 172.301(a)(2)
❑ If $\geq$ 8820 lb of one hazardous material, loaded at one facility, on one truck, mark ID number on all four sides of vehicle.	49 CFR 172.301(a)(3)
❑ Mark consignee's or cosigner's name and address.	49 CFR 172.301(d)
❑ If package authorized by an exception, mark package DOT-E.	49 CFR 172.301(c)
❑ Mark radioactive class 7 materials with gross mass and type of material.	49 CFR 172.310
❑ For combination packages where the inside package contains a liquid, include orientation marking.	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 number.	
❑ If $\geq$ 2205 lb of one PIH, loaded at one facility, mark ID number 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
❑ Check packages for specification markings on bottom and top or side of package.	49 CFR Subpart L and M

Checklist 4 (cont'd).
Marking Requirements

Bulk Marking Checklist	Reference
❑ Mark each end and each side of packages ≥ 1000 gal. with ID number. Mark two opposing sides if < 1000 gal.	49 CFR 172.302
❑ Mark two opposing sides of bulk packages containing PIHs with ID number.	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 number on all four sides.	49 CFR 172.326
❑ For cargo tanks, mark all four sides with ID number.	49 CFR 172.328
❑ For tank cars, mark ID number on all four sides and two sides with certain PSNs.	49 CFR 172.330
❑ 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.	49 CFR 172.330

Checklist 5.
Labeling Requirements

Labeling Checklist	Reference
❑ Determine primary hazard label requirement from column 6 of the hazardous materials table.	HMT Column 6
❑ Determine if material has a subsidiary hazard and needs a subsidiary hazard label.	49 CFR 172.402
❑ Normally, 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 has a volume of more than 18 m^3 (640 ft^3). ❑ Non-bulk package contains radioactive material. ❑ Portable tank has a volume of < 1000 gal. (3785 L). ❑ Freight container has a volume of ≥ 1.8 m^3 (64 ft^3), but < 18 m^3.	49 CFR 172.406(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 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 over 1000 lb (454 kg), the placards specified in Table 2 must be offered.	49 CFR 172.504
❑ In contrast, if the aggregate gross weight of the materials with hazard classes on table two is less than 1001 lb, Table 2 placards are not required, but may be displayed.	
❑ A DANGEROUS placard may be displayed 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.	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

Checklist 7.
Asbestos Waste Shipping

Both the EPA and DOT regulate the shipping of 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 utilized.

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 required 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 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.

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)).
- ❑ 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 lb (454 kg) of asbestos (49 CFR 172 Subpart F).

Checklist 8.
PCB Manifest Requirements

PCB manifesting requirements are found in 40 CFR 761.207. Section 761.207(a) requires the use of a manifest for all shipments of wastes containing PCBs at concentrations of 50 ppm or greater, or spills where the source of the spill was greater than or equal to 50 ppm or unknown.

NOTE: This is a basic checklist that may be applied to PCB wastes only. There are many more requirements when the waste is mixed with RCRA hazardous waste. This checklist is only a guide for manifesting PCB electrical equipment or PCB waste, or both.

Is this shipment DOT regulated? The answer is yes if any of the items below are applicable:

- ❑ PCBs to be transported by air or water.
- ❑ A reportable quantity amount is to be transported.
- ❑ PCBs are mixed with a regulated hazardous waste.

Is a manifest needed? The answer is yes if any of the items 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.

The following items must be placed on the manifest for bulk loads of PCBs:

- ❑ Identification of the waste.
- ❑ Earliest date of removal from service for disposal.
- ❑ Weight in kilograms of the PCB waste.

The following items must be placed on the manifest for PCB articles 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.

The following items must be placed on the 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.
- ❑ Obtaining the manifest.

Checklist 8 (cont'd).
PCB Manifest Requirements

Manifest acquisition:

- ❑ First, check to see if the disposal state has a manifest.
- ❑ If no disposal state manifest, does generator's state have a required manifest?
- ❑ If no state requirement, use the *Uniform Hazardous Waste Manifest.*
- ❑ Indicate the manifest used. (Name state in space or indicate the uniform manifest was used-UHWM)
  _____

- ❑ Emergency response information (49 CFR 172.604).
- ❑ On manifest, must include the name and telephone number of person delegated to accept responsibility and make decisions concerning the shipment. Manifest must read "Emergency Contact: _____ __."
- ❑ *Material Safety Data Sheet* or *Emergency Response Guide* attached to manifest or referenced on manifest.

General requirements before shipping:

- ❑ Manifest is signed by hand.
- ❑ Initial transporter has signed and dated manifest.
- ❑ Generator retains his or her copy of manifest.
- ❑ Generator follows state's instructions for distributing manifests.
- ❑ Generator gives remaining copies of manifest to transporter.

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.
- ❑ Confirm that ultimate disposal has occurred within 1 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 or EPA, or both?
  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 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 material having a specific activity greater than 70 Bq per gram (2000 picocuries per gram). If no, stop. Do not use this checklist.

- ❑ Is the activity of the material *uniformly distributed*[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 mill tailings, contaminated earth, concrete, rubble, other debris, and activated material in which class 7 material is *essentially uniformly distributed*[1] and the average specific activity does not exceed $10^{-6}A_2/g$.

- ❑ Does the material meet the definition of LSA II? LSA-II are materials in which the class 7 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.

In order to transport LSA (49 CFR 173.427):

- ❑ External dose rate $\leq$ 10mSv/hr at 3 meters from the unshielded material (If > 10 mSv/hr must package in accordance with 10 CFR 71).
- ❑ Quantity of material in a single conveyance $\leq$ Table 9 values.
- ❑ If fissile must meet additional requirements.
- ❑ Must meet the contamination control limits specified in Table 11 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 packagings for solids if *exclusive use.*
- ❑ For liquids, specification packaging in tank cars and cargo tank motor vehicles if *exclusive use,*

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

[1] Difference between *distributed throughout* and *essentially uniformly distributed* for LSA material is clarified in DOT RAMREG-003 (NU REG-1608) in paragraph 4.2.2 on page 4-7.

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

- ❑ Are you using a provision that requires you to ship *exclusive use*?
  If required to go *exclusive use*, there must be:
- ❑ 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 packages.

Shipping papers requirements (49 CFR 172 Subpart C)

- ❑ Proper Shipping Name (PSN), hazard class, identification number.
- ❑ Total quantity of material corresponding to PSN.
- ❑ RQ if applicable.
- ❑ "Waste" precedes the PSN if the material is also Federally regulated RCRA waste.
- ❑ "Marine Pollutant," if material contains a marine pollutant.
- ❑ Need to identify the radionuclide on the shipping papers.
- ❑ For mixtures, must identify the Radionuclides contributing to 95% of the activity of the material on the shipping papers.
- ❑ RADIOACTIVE MATERIAL, unless words already in PSN.
- ❑ Description of physical/chemical form.
- ❑ Activity of package in SI units.
- ❑ Provide an exclusive use indicator.
- ❑ Make LSA group notation.
- ❑ 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 required if non-bulk and bulk packages are marked "Radioactive - LSA" and "RQ" on non-bulk packages.
- ❑ Must placard all exclusive use shipments of LSA in strong tight containers.

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

- ❑ Industrial package.
- ❑ DOT Spec 7A Type A package (domestically).
- ❑ NRC Type A package domestic transportation only and exclusive (10 CFR 71.52).
- ❑ Type B package.

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

Comments:

Example

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:

US 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 and that it contains less than 70 Bq per gram (2000 picocurie per gram) of activity and less than a DOT RQ of radionuclides.

_____ _____
(Signature of Health Physicist) (Date)

Example
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 US Army Corps of Engineers within 1 hour:

US 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: 11-1-99

** **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.*