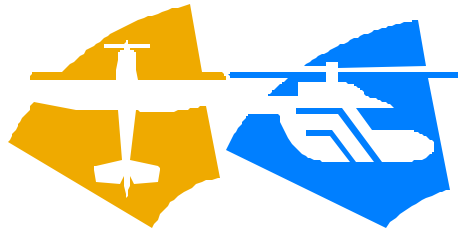
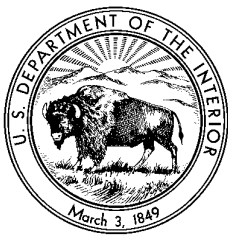

INTERAGENCY
AVIATION TRANSPORT
OF
HAZARDOUS MATERIALS



U.S. DEPARTMENT OF THE INTERIOR
HANDBOOK

U.S. DEPARTMENT OF AGRICULTURE – FOREST SERVICE
GUIDE



January 2005

NFES 1068

FOREWORD

This document, as authorized in 350 DM 2 and FSM 5700, establishes the Department of the Interior (DOI) and USDA-Forest Service (FS) interagency aviation transport of hazardous materials program. This document sets forth the objectives, policies, and standards for the transport of hazardous materials in aircraft under the exclusive direction and operational control of the DOI or FS.

Questions regarding this program should be directed to the Aviation Management (DOI AM) Regional or Area Offices or to the FS National Aviation Officer. Additional copies of this document may be ordered from the National Interagency Fire Center, Great Basin Cache Supply Office, 3833 South Development Avenue, Boise, Idaho 83705. This handbook is also available on the DOI Aviation Management website at <http://www.oas.gov>.



ACTING
Associate Director
Aviation Management Directorate
National Business Center
U.S. Department of the Interior

Date 2-23-05



Director
Fire and Aviation Management
U.S. Forest Service
U.S. Department of Agriculture

Date 23 FEB 05

Additional copies of this document may be ordered from the National Interagency Fire Center, Great Basin Cache Supply Office, 3833 South Development Avenue, Boise, Idaho 83705, order number NFES 1068.

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CHAPTER 1

GENERAL INFORMATION

- 1.1 Scope.** Hazardous material, as defined in 49 CFR, “means a substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce. The term includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (see 49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions in part 173 of subchapter C of this chapter.”
- 1.2 Objective.** The objective of the aviation transport of hazardous materials program is to ensure the safety of flight when transporting hazardous materials aboard (including attached to or suspended from) Government-owned and contract vendor aircraft under the exclusive direction and operational control of the DOI or FS. DOI or FS will provide:
- A. Technical advice on hazardous materials, handling procedures, and air transportation methods.
 - B. Technical training in the handling, storage, dispensing, and transportation of hazardous materials.
 - C. Information on new innovations and procedures to transport hazardous materials.
- 1.3 How To Use This Handbook/Guide.** General guidance and direction is outlined in chapter 1 and explicit direction for each type of hazardous material is addressed in chapters 2 through 10. The information contained in chapter 1 is applicable to chapters 2 through 10.
- 1.4 Rules of Construction.** The use of the verbs “must” and “shall” conveys mandatory compliance. “May” is used in a permissive sense to state authority or permission to do the act described, and the words “no person may” or “a person may not” mean that no person is required, authorized, or permitted to do the act described.
- 1.5 Applicability.** The procedures established in this document will be utilized only in the support of DOI and FS operations involving aircraft that are Government-owned and/or contract vendor-owned, flown by either a Government or vendor pilot, under the exclusive direction and operational control of DOI or USDA-Forest Service. Other modes of transportation, aircraft not under the exclusive direction and operational control of DOI or FS, passenger transport as defined by Public Law 106-181, and hazardous materials not specified in this document must comply with 49 CFR Parts 171-180.

Qualified non-crewmembers whose presence is required to perform or is associated with the performance of a Governmental function such as national defense, intelligence missions, firefighting, search and rescue, law enforcement (including transport of prisoners, detainees, and illegal aliens), aeronautical research, or biological or geological resource management are allowed to be aboard an aircraft performing public aircraft operations while transporting hazardous material.

- 1.6 Hazardous Material Identification Aids.** Information on the contents of a product suspected of containing hazardous materials can be obtained by contacting the manufacturer of the product and requesting a Material Safety Data Sheet (MSDS). If a product is suspected of containing hazardous materials, it must be identified before being transported. MSDSs for many substances are available at one of the following websites:

<<http://siri.uvm.edu/msds>>

<http://www.camd.lsu.edu/msds/msds_search.html>

- 1.7 Limiting Exposure.** Personnel shall minimize the hazards associated with transporting hazardous materials by:

- A. Carrying hazardous materials aboard aircraft only when other means of transportation are impracticable.
- B. Limiting personnel on aircraft carrying hazardous materials to those qualified non-crewmembers essential to mission accomplishment.
- C. Avoiding hazardous materials flights over populated areas.
- D. Restraining packages placed aboard aircraft including cargo compartments and external cargo racks from movement while in transit.
- E. Prohibiting smoking or the use of any item that could cause an open flame or spark when explosives, flammable solids, flammable liquids, or gases are being loaded and unloaded, or during flight.

- 1.8 Notifying Pilot of Hazardous Materials.** The pilot and all personnel aboard an aircraft must be made aware of the location and type of hazardous materials being transported with them. The pilot shall ensure that all personnel are briefed as to what specific actions are required in the event of an emergency. The pilot must be given initial written notification of the common name, hazard class, Emergency Response Guide number, quantity, and location of hazardous materials placed aboard the aircraft before the start of any project (the USFS also requires that the pilot be notified of the shipping name). Thereafter, verbal notification of changes in hazardous materials is acceptable for ongoing missions. A cargo manifest (see appendix 3 or 4) or similar document may be used for written notification. For operations where the types of the materials do not change, repeated notification will not be required. For external jettisonable load operations, verbal notification of the type and quantity of hazardous materials is acceptable.

- 1.9 Pilot-In-Command Authority.** The assigned pilot-in-command is directly responsible and is the final authority for the operation of that aircraft to include the acceptance of hazardous materials. Before each flight the pilot-in-command must:
- A. Inform all personnel of the location of hazardous materials aboard the aircraft.
 - B. Prohibit smoking or any other activity that could cause an open flame or sparks.
- 1.10 Exceptions.** Packaging, markings, labeling, and shipping paper requirements of 49 CFR, subchapter C, do not apply to hazardous materials transported in accordance with this handbook aboard aircraft for Government purposes when under exclusive direction and operational control of DOI or FS. Hazardous materials not specified in this document must be transported in accordance with the requirements of 49 CFR Parts 171-180.
- 1.11 Packaging.** Packages containing hazardous materials must (1) be compatible with the product to be contained, (2) have all closures secured, (49 CFR 173.24), (3) not leak, and (4) not allow the contents to come in contact with the aircraft or personnel (packaging for USDA Forest Service operations must be compatible with the provisions of 49 CFR, Subchapter C, or have an equivalent level of safety.). Packages must be inspected for damage or leaks during loading and unloading. Packages with holes, leakage, or other indications of damage affecting integrity must not be placed aboard an aircraft. Damaged or leaking packages discovered on board the aircraft should be handled only as necessary to minimize further damage or injury. Leaking packages shall be reported in accordance with paragraph 1.18 of this handbook/guide. A damaged container emptied of its contents, containing only residue, must be transported in a UN 1A2 overpack or salvage packaging.
- 1.12 Hazard Communication Marking.** Except where otherwise noted in the control measures, packaging shall be marked with the common name and the name of the hazard class to identify the package contents. Examples: gasoline/flammable, diesel/combustible, fusees/flammable solid, battery/corrosive, aerosol paint cans/flammable gas, propane/flammable gas. Markings may be applied directly to the package or affixed to the packaging by means of a tag.
- 1.13 Incompatible Hazardous Materials.** Hazardous materials that might react dangerously with one another must be segregated using separate flights, separate compartments, or separate packaging that prevents the interaction of the two materials.
- 1.14 Returns from Project Sites (Back Hauls).** Hazardous materials returning from the project site shall be managed in the manner of the original contents unless the container is sufficiently cleaned of residue and vapor to remove potential hazards.

1.15 Training Requirements. Training in the proper handling of a hazardous material must be given to each person who loads or unloads hazardous materials on aircraft. Training must include the requirements and conditions of this handbook and must include general awareness/familiarization, function-specific, and safety training (*Emergency Response Guide (ERG)*). Only the training approved by DOI AM is to be used to meet this requirement.

1.16 Special Provisions.

- A. A copy the *Interagency Aviation Transport of Hazardous Materials Handbook/Guide* and the ERG and DOT-E 9198 must be carried aboard each aircraft transporting hazardous materials.
- B. A copy the *Interagency Aviation Transport of Hazardous Materials Handbook/Guide* and the ERG must be maintained at each facility where the hazardous materials are offered or reoffered for transportation. For helicopter field operations away from fixed facilities, these requirements are deemed to have been met when the helicopter is loaded or reloaded under the direct supervision of an agency employee trained in accordance with this handbook.

1.17 Deviations. Request for deviations from this program should be addressed to the Associate Director, DOI Aviation Management, or the Chief, USDA-Forest Service.

1.18 Hazardous Materials Mishap Notification. Hazardous materials incidents must be reported so that an investigation by the appropriate authorities can establish the cause and corrective actions. It is the responsibility of any DOI or FS employee at the scene of the incident to notify the local hazmat coordinator or responsible party and the DOI AM Safety Office or FS Regional Aviation Officer if, in the opinion of any employee, a situation exists that could result in damage or injury as a result of hazardous materials.

1.19 Definitions. Terms most often used in the handling of hazardous materials in accordance with this handbook are listed in appendix 1.

1.20 Abbreviations. Abbreviations used in this handbook are contained in appendix 2.

CHAPTER 2

FLAMMABLE AND COMBUSTIBLE LIQUIDS

- 2.1 **General Information.** Includes all flammable and combustible liquids except those under compression (propane, butane, etc.). These materials may include but are not limited to gasoline, diesel, kerosene, alcohol, white gas (stove fuel), paint, and thinners/solvents.
- 2.2 **Control Measures: Non-Bulk.** To transport flammable and combustible liquids in non-bulk containers of 119-gallon capacity or less, the following conditions must be met:
- A. Containers must be specifically designed to carry flammable and combustible liquids and be of sufficient strength to prevent leakage during transportation and handling.
 - B. All closures on the containers should be tight and the outside of the container should be free of any residue.
 - C. Containers shall be filled to a level that allows for expansion due to temperature or altitude and never filled beyond rated capacity.
 - D. Containers must be secured in the upright position by tie-down straps or shipped in an outside container that will keep the inner container upright.
 - E. Containers that may release vapors must not be transported in unvented aircraft compartments. Baggage compartments in unpressurized aircraft are considered vented compartments (an unpressurized cabin may also be used when it is ventilated to prevent accumulation of harmful vapors).
 - F. Flammable and combustible liquids shall not be transported in plastic or glass containers unless they are specifically designed for that purpose.
 - G. Additional requirements apply to the following containers:
 - 1. **Safety Cans.** Safety cans must be transported in vented compartments, secured in the upright position, and filled to a level that prevents spillage (no more than 90% capacity).
 - 2. **Military Jeep Cans (3A1 Jerrycans).** Military Jeep cans must be secured in the upright position and have 2 inch of air space below the container opening.
 - 3. **Drip Torches.** Drip torches (1) must be transported with the igniter nozzle assembly in the tank, air breather valve closed, tank lockring sealed, and fuel spout plug closed and (2) must be secured in the upright position. Leave a minimum of 2 inches of air space below the container opening when filling.

4. **Chainsaw Fuel/Oil Plastic Container (Dolmars).** Chainsaw fuel/oil containers must be transported with the pourer spouts enclosed within the container with the caps sealed. Ensure seal gaskets or o-rings are intact. The fuel air breather cap must be closed during transportation. Secure in an upright position. Leave a minimum of 2 inches of air space below the fuel compartment opening when filling.
5. **Sigg Bottles.** Sigg bottles must not be transported with a pouring spout in lieu of an unvented cap and must have 2 inches of air space below the container opening.

2.3 **Control Measures: Flammable Fuel in Powered Equipment Tanks.** To transport flammable fuel in powered equipment tanks the following conditions must be met:

- A. Not more than 20 gallons of flammable fuel in powered equipment tanks may be carried on any load.
- B. Powered equipment is secured in an upright position.
- C. Each fuel tank is filled in a manner that will preclude spillage of fuel during loading and unloading and during transportation.
- D. The compartment in which the equipment is loaded must be ventilated to prevent the accumulation of fuel vapors and must not contain an exposed battery.

Note: The following procedure may be used to remove the requirement to classify powered equipment as hazardous material:

Purging of Flammable Fuel Tanks. Liquid fuel-powered equipment may also be transported on aircraft when the fuel tanks are purged of fuel. The following is an example of mechanical purging of an engine fuel tank:

1. Drain fuel tank.
2. Run engine until it stops.
3. Attempt restarting with choke on until engine fails to fire.
4. Remove fuel tank cap and invert engine for 5 minutes, when possible.
5. Replace cap.

- 2.4 **Bulk Fuel Containers.** Any fuel container in excess of 119-gallon capacity will be considered a bulk fuel container. Fuel may be carried in bulk fuel tanks if the tanks are installed in accordance with the applicable Federal Aviation Regulations approved by DOI or FS. Sealdrums (Rollagons) or bladder tanks of capacity up to 500 gallons are acceptable for carrying fuel in aircraft.
- 2.5 **Compatibility Restrictions.** Flammable and combustible liquids must not be stored next to or in contact with oxidizers (i.e., potassium permanganate, a.k.a. plastic spheres), or batteries. Flammable and combustible liquids shall not be transported with explosives.

CHAPTER 3

IGNITION DEVICES

- 3.1 **General Information.** Includes fusees, flares, and other flammable solids designed for signaling, fire ignition, or fumigating. This also includes other materials used for aerial ignition activities such as helitorches, helitorch fuel, plastic sphere dispensers, and plastic spheres containing oxidizers such as potassium permanganate.
- 3.2 **Control Measures.** To transport fusees, “strike anywhere“ matches, flares, and plastic spheres in aircraft, the following conditions must be met:
- A. All fusees must be packaged in a container, box, or pack.
 - B. Broken fusees and those with protective igniter caps removed shall not be transported in aircraft. Fusees prepared for an aerial fusee gun are not required to have protective igniter covers.
 - C. Fusees and flares should be carried in original shipping containers whenever possible.
 - D. Pistol flare ammunition may be carried on aircraft if contained in original package, box, pack, or manufactured container designed for transporting ammunition.
 - E. Plastic spheres containing oxidizers must be segregated from antifreeze (glycol) containers during transportation.
 - F. Plastic spheres, containing oxidizers, may be loaded into bags that will be utilized to facilitate the efficient filling of the dispenser in flight during dispensing operations.
 - G. Personnel engaged in fire management activities may transport small quantities of fusees (5 or less) inside field gear packs without the hazard communications marking.
 - H. “Strike anywhere” matches, other than those carried in personal survival kits, shall be transported in container suitable for their safe transport. (Suitable containers inhibit movement of matches thus preventing ignition).
- 3.3 **Compatibility Restrictions.** Ignition devices shall not be transported in a position that allows them to interact with batteries or battery fluids. Ignition devices shall not be transported with explosives.

CHAPTER 4

BATTERIES/BATTERY FLUID

- 4.1 **General Information.** A battery is a device for generating an electrical current by a chemical reaction. Wet-cell batteries contain a fluid of electrolyte acid or alkaline solution. This fluid is corrosive and is a hazardous material. A wet-cell battery case without the fluid is referred to as an empty storage battery or dry-storage battery and contains no hazardous material. The following procedures are recommended:
- A. Use dry cell or non-spillable wet-cell batteries.
 - B. Use spill-resistant caps on wet-cell batteries.
- 4.2 **Control Measures.** To transport batteries and battery fluids in aircraft, the following conditions must be met:
- A. All batteries, regardless of type, must be protected from short circuits by nonconductive terminal caps, tape, covers, or containers.
 - B. Wet-cell batteries must be packed in nonconductive containers or palletized and have a slip-on cover of nonconductive material.
 - C. Spillable wet-cell battery containers must be marked "this side up" or "this end up" and secured in an upright position. These markings must be placed on two opposite sides of the package.
 - D. Transport batteries and battery fluids in the manufacturer's original shipping containers. If original containers are not available, package in a wooden or fiberboard box lined with a strong plastic bag.
 - E. Battery fluid is limited to 5 gallons per package and must be secured in an upright position by tiedown straps or placed inside an outer container that will prevent the package from overturning.
 - F. Metallic items must not be packaged in the same container as a battery.
- 4.3 **Compatibility Restrictions.** Batteries and battery fluids shall not be transported in a position that allows them to interact with flammable solids, oxidizers. Batteries and battery fluids shall not be transported with explosives.

CHAPTER 5

EXPLOSIVES

- 5.1 **General Information.** When transporting explosives on aircraft, water gels and two-component explosives are preferred.
- 5.2 **Control Measures.** To transport explosives by aircraft, the following conditions must be met:
- A. All explosives transported in accordance with this Handbook must be classed and approved in accordance with 49 CFR and be labeled on the outside of the package with the appropriate UN/DOT hazardous materials warning label.
 - B. All explosives must be prepared, packaged, and transported under the control or direction of a licensed and certified blaster or a person who is approved by DOI, FS, or cooperating agencies.
 - C. Detonating materials and explosives shall be carried on different flights or segregated using separate compartments or packaging that prevents the interaction of the two materials.
 - D. Only qualified non-crewmembers necessary for the completion of the mission shall be allowed on a flight transporting explosive materials.
 - E. If the material concerned can create destructive forces or have lethal or injurious effects over an appreciable area as a result of an accident involving the aircraft or the material, the loading and unloading of the aircraft and its operation in takeoff, en route, and in landing must be conducted at a safe distance from heavily populated areas and from any place of human abode or assembly (49 CFR 175.320 (b)(4)).
- 5.3 **Compatibility Restrictions.** Explosives shall not be transported or stored next to or in contact with flammable gas, non-flammable gas, flammable/combustible liquids, flammable solids, oxidizers, or corrosives.

CHAPTER 6

COMPRESSED GASES AND LIQUIDS

- 6.1 **General Information.** Includes liquids or fuels under compression such as propane, butane, acetylene, etc., and aerosol containers. High-pressure cylinders may contain products such as air, oxygen, carbon dioxide, helium, nitrogen, and argon. Note: HEEDS units are considered personal survival equipment (see Chapter 8).
- 6.2 **Control Measures.** To transport compressed gases and liquids in aircraft the following conditions must be met:
- A. Must be transported in a DOT specification container.
 - B. Except for aerosol containers, fire extinguishers, and propane, compressed gas cylinders must be labeled on the outside with the appropriate UN/DOT hazardous materials warning label.
 - B. Containers with gases and liquids under pressure must be secured to prevent movement. Fire extinguishers must be secured in a manner to protect the valve.
 - C. When carrying compressed gases and liquids internally, adequate ventilation must be provided to prevent the accumulation of harmful vapors.
 - D. Compressed gases or liquids shall not be dispensed or used inside the aircraft during flight, except oxygen, or air, and compressed gases for infrared cameras.
 - E. Except when dispensing compressed gases and liquids during flight, cylinder valves must be protected from damage by a cap, collar, outer container, or recess in the container. Pressurized SCBA/scuba tanks shall be packaged in an outer container or have alternate means of valve protection.
 - F. Aerosol containers must be packaged in an outer container or pack.
 - G. Oxygen containers must not be stowed or used in a manner that allows oxygen to come into contact with flammable liquids or oils and greases.
- 6.3 **Compatibility Restrictions.** Compressed gases and liquids shall not be transported with explosives.

CHAPTER 7

SMALL ARMS AMMUNITION

- 7.1 **General Information.** Includes ammunition for pistols, rifles, shotguns, and similar firing devices.
- 7.2 **Control Measures.** To transport small arms ammunition in aircraft, one of the following conditions must be met:
- A. A person who is required to carry a firearm while performing official Government business may carry ammunition for small arms in a readily accessible manner.
 - B. Loaded weapons will be transported in aircraft only when the mission dictates their use in flight or soon after landing.
 - C. Small arms ammunition may be carried on aircraft if contained in original package, box, pack, or manufactured container designed for transporting ammunition.
 - D. Hazard communication marking is not required for small arms ammunition.
- 7.3 **Compatibility Restrictions.** Small arms ammunitions must not be stored next to or in contact with compressed gases, flammable liquids, or corrosives.

CHAPTER 8

PERSONAL SURVIVAL EQUIPMENT

- 8.1 **General Information.** Numerous DOI and FS personnel are required to carry on their person materials essential to survival such as inflatable flotation devices, spare CO2 cartridges for flotation devices, small arms and ammunition, stove fuel, fire starters, pen flares, strike anywhere matches, and supplemental breathing air. Many of these survival devices are carried in a pocket, in a survival vest, or pack.
- 8.2 **Control Measures.** To transport items of personal survival equipment the following conditions must be met:
- A. Life saving devices may be carried in survival vests/jackets/packs/kits without any further requirements provided they are packed in such a manner to prevent any accidental discharge, activation, or ignition.
 - B. Hazard communication marking is not required for individual hazardous items of personal survival equipment when carried in a pocket, survival vests/jackets/ packs/kits.
 - C. Each hazardous item must be identified separately during initial pilot notification.
- 8.3 **Compatibility Restrictions.** None.

Reminder:

The procedures listed in this Handbook/Guide pertain to aircraft under the exclusive direction and control of DOI and the USFS. Any personal survival equipment that contains hazardous materials must be transported in accordance with 49 CFR for all other modes of transportation including commercial air carriers and seat fare aircraft.

CHAPTER 9

MEDICAL WASTE

- 9.1 **General Information.** Medical waste consisting of blood-soaked materials such as clothing, bandages, etc.
- 9.2 **Control Measures.** Medical waste may be transported when one of the following conditions is met:
- A. Medical waste that is generated as a result of an emergency response by qualified non-crewmembers is to be handled in accordance with that unit's medical waste policy. Additional hazard communication marking is not required for these operations.
 - B. Medical waste transported for others must have a fiberboard or similar rigid overpack to protect the medical waste container from punctures or tears.
- 9.3 **Compatibility Restrictions.** None.

CHAPTER 10

BEAR REPELLENT/IRRITANTS

- 10.1 **General Information.** Includes red pepper extract aerosol products (oleoresin capsicum) such as bear repellent spray and personal defense sprays. Irritants such as bear repellent, tear gas, and mace should be transported in an external compartment whenever practical.
- 10.2 **Control Measures.**
- A. Except for law enforcement operations conducted under paragraph B, all bear repellent/irritant spray must be transported in an outer container of significant strength that prevents the aerosol from accidentally discharging in the aircraft.
 - B. Defensive aerosols carried by law enforcement officers may be carried in a duty belt or similar protective device when not contained within an outer container. Additional hazard communication marking is not required for this operation.
 - C. Avoid exposure to ignition sources and temperatures above 120 degrees F.
 - D. Ventilate the cabin and cockpit when fumes are detected during flight.
 - E. Move personnel to fresh air and away from the aircraft when fumes are detected on the ground.
- 10.3 **Compatibility Restrictions.** None.

Reminder:

The procedures listed in this Handbook/Guide pertain to aircraft under the exclusive direction and control of DOI and the USFS. Any bear spray/irritants must be transported in accordance with 49 CFR for all other modes of transportation including commercial air carriers and seat fare aircraft.

APPENDIX 1 DEFINITIONS

Cargo Aircraft. An aircraft that is used to transport cargo and is not engaged in carrying passengers. A qualified non-crewmember is not considered a passenger .

Emergency Response Guidebook. A guidebook for first responders during the initial phase of a dangerous goods/hazardous material incident.

Exclusive Direction and Operational Control. The condition existing when the DOI or FS entity exercised the authority over initiating, conducting, or terminating a flight.

Fusee. A fusee is a device designed to burn at a controlled rate for signaling, fire ignition, or fumigating purposes. It is not a fuse that is used to carry flame and detonate an explosive. A fusee consists of a pasteboard or fiber tube containing a chemical mixture and some type of igniter cap or fuse.

Hazardous Materials. As defined in 49 CFR, hazardous material “means a substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce. The term includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (see 49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions in part 173 of subchapter C of this chapter.”

Hazmat Employee. As defined in 49 CFR 171.8, a hazmat employee is a person who is employed by a hazmat employer and who in the course of employment directly affects hazardous materials transportation safety. This term includes an individual, including a self-employed individual, employed by a hazmat employer who, during the course of employment:

1. Loads, unloads, or handles hazardous materials;
2. Manufactures, tests, reconditions, repairs, modifies, marks, or otherwise represents containers, drums or packaging as qualified for use in the transportation of hazardous materials;
3. Prepares hazardous materials for transportation;
4. Is responsible for safety of transporting hazardous materials; or
5. Operates a vehicle used to transport hazardous material.

Oxidizer. Material that may, by yielding oxygen, cause or enhance the combustion of other materials; i.e., potassium permanganate contained in plastic spheres for aerial ignition.

Plastic Spheres (ping pong balls). A plastic sphere that contains potassium permanganate used for aerial ignition.

Public Aircraft. An aircraft performing a governmental function such as national defense, intelligence missions, firefighting, search and rescue, law enforcement or biological or geological resource management.

Qualified Non-Crewmember. A person whose presence is required to perform or is associated with the performance of a Governmental function (Public Law 106-181).

Safety Cans. These are vented fuel containers with self-closing caps, which may release fuel vapors.

Salvage Packaging. Packaging into which damaged, defective, or leaking hazardous materials packages, or hazardous materials that have spilled or leaked, are placed for purposes of transport for recovery or disposal.

Sigg Bottle. These containers are round aluminum fuel bottles designed to transport fuel and other liquids for backpacking and other recreational use.

UN 1A2 Overpack. A container utilized to move a damaged hazardous material package and its residual contents when further transport is required.

Unpressurized Cabin. See vented compartment.

Vented Compartment. Baggage compartments in unpressurized aircraft are considered vented compartments (an unpressurized cabin may also be used when it is ventilated to prevent accumulation of harmful vapors).

APPENDIX 2

ABBREVIATIONS

CFR	Code of Federal Regulations
DM	Department Manual, U.S. Department of the Interior
DOI	U.S. Department of the Interior
DOI AM	U.S. Department of the Interior, Aviation Management
DOT	U.S. Department of Transportation
ERG	Emergency Response Guidebook
FS	U.S. Forest Service
FSM	Forest Service Manual
Hazmat	Hazardous Materials
HEEDS	Supplemental Breathing Air
PFD	Personal Flotation Device
SBA	Supplemental Breathing Air
SCBA	Self-Contained Breathing Apparatus
Scuba	Self-Contained Underwater Breathing Apparatus
UN/DOT	International Standard for Labels and Hazard Classes

APPENDIX 3
SAMPLE 1 HAZARDOUS MATERIALS MANIFEST
(OPTIONAL)

Hazardous Materials Manifest						
DOT E-9198						
Date _____						
Aircraft # _____			Bureau/Agency _____			
Common Name	Hazard Class			ERG#	QTY	Weight
Batteries Wet/Acid	CORROSIVE MATERIALS			154		
Batteries Wet Non-Spillable	CORROSIVE MATERIALS			154		
Bear Spray, Irritants	MISCELLANEOUS HAZARDOUS MATERIALS					
Cartridges Small Arms	NO SIGNIFICANT BLAST HAZARD					
Diesel Fuel	COMBUSTIBLE LIQUID			128		
Engines, Internal Combustion	FLAMMABLE COMBUSTIBLE LIQUIDS			128		
Fire Extinguisher	NONFLAMMABLE GAS			126		
Flammable Liquid (Drip Torch)	FLAMMABLE LIQUID			128		
Fuel Aviation Turbine	COMBUSTIBLE LIQUID			128		
Fusee	FLAMMABLE SOLIDS			133		
Gasoline	FLAMMABLE LIQUID			128		
Methanol (Petro Gel)	FLAMMABLE LIQUID			131		
Methacetylene/Propadiene Mixture, Stabilized (Mapp Gas)	FLAMMABLE GAS			116P		
Oxygen	NONFLAMMABLE GAS			122		
Petroleum Distillate (White Gas)	FLAMMABLE LIQUID			128		
Potassium Permanganate	OXIDIZER			140		
Propane	FLAMMABLE GAS			115		
Medical Waste	INFECTIOUS SUBSTANCE			158		
Total Weight						
Remarks:						
Shipper's Signature _____					Location	
Pilot's Signature _____						
Contact Telephone Number _____						

HAZARDOUS MATERIALS MANIFEST

BLANK FORM

(OPTIONAL)

Hazardous Materials Manifest DOT E-9198

Date _____

Aircraft # _____

Bureau/Agency _____

Common Name	Hazard Class				ERG#	QTY	Weight
Total Weight							
Remarks:							
Shipper's Signature						Location	
Pilot's Signature							
Contact Telephone Number							

APPENDIX 4
SAMPLE 2 HAZARDOUS MATERIALS MANIFEST
(OPTIONAL)

Hazardous Materials Manifest DOT E-9198						
Date _____						
Aircraft # _____			Bureau/Agency _____			
Common Name	Shipping Name	Hazard Class	UN Number	ERG #	QTY	WT
Acetylene	Acetylene, dissolved	2.1 FLAMMABLE GAS	UN1001	116		
Aerosols	Aerosols non flammable each not exceeding 1L capacity)	2.2 NON FLAMMABLE GAS	UN1950	126		
Aerosols Starting fluid, WD-40	Aerosols Flammable (each not exceeding 1 L capacity)	2.1 FLAMMABLE GAS	UN1950	126		
Antifreeze, ethylene glycol	Not regulated by DOT	None	None	None		
Batteries dry	Batteries dry, containing potassium hydroxide solid electric storage	8 CORROSIVE	UN3028	154		
Batteries wet	Batteries wet filled with acid	8 CORROSIVE	UN2794	151		
Batteries wet	Batteries wet filled with alkali	8 CORROSIVE	UN2795	131		
Batteries wet	Batteries wet non spill able	8 CORROSIVE	UN2800	154		
Bear Spray, Irritants	Consumer Commodity	ORM-D	NONE	None		
Cartridge	Cartridge for small arms	ORM-D	NONE	None		
Clorox, liquid bleach	Hypochlorite Solutions	8 CORROSIVE	UN1791	154		
CO2 cartridge	Carbon dioxide	2.2 NON FLAMMABLE GAS	UN1013	120		
Diesel	Diesel ,fuel	3 FLAMMABLE	UN1993	128		
Drip torch fuel	Gasoline/ Diesel	3 FLAMMABLE	UN1203	128		

Engines internal combustion	Engine internal combustion flammable gas powered	9 CLASS 9	UN3166	128		
Fire extinguisher	Fire Extinguisher	2.2 NON-FLAMMABLE GAS	UN1044	126		
Fireline explosives FLE	Explosive blasting type E	1.1 EXPLOSIVES 1.1	UN0241	112		
Flare shell ¾" x 3 ½" Pistol Flare	Flammable solid, inorganic, nos (Aluminum powder)	4.1 FLAMMABLE SOLID	UN3178	133		
Flare shell 2 ½" x 6" Pistol Flare	Flammable solid, inorganic, nos (Aluminum powder)	4. FLAMMABLE SOLID	UN3178	133		
Fuel white Gas	Petroleum distillates, nos, (Naphtha solvent)	3 FLAMMABLE	UN1268	128		
Fuel, aviation jet-a	Fuel aviation, turbine engine	3 FLAMMABLE	UN1863	128		
Fusee	Fusee (rail or highway)	4.1 FLAMMABLE SOLID	UN1325	133		
Gasoline	Gasoline	3 FLAMMABLE	UN1203	128		
Life saving PFD	Life saving appliance not self inflating	9 CLASS 9	UN3072	171		
Lithium battery	Lithium battery	9 CLASS 9	UN3090	138		
Map Gas Helitorch	Methyl acetylene and propadiene mixtures stabilized	2.1 FLAMMABLE GAS	UN1060	116P		
Matches	Matches Safety (book , card or strike on box)	4.1 FLAMMABLE SOLID	UN1944	133		
Medical waste	Infectious substances affecting humans	6.2 NONE	UN2814	158		
* MRE heaters (FRH) Non- activated	Magnesium powder	4.3 DANGEROUS WHEN WET	UN1418	138		
Nitrogen	Nitrogen, compressed	2.2 NON-FLAMMABLE GAS	UN1066	121		
Nitrogen refrigerated	Nitrogen, refrigerated liquid, cryogenic liquid	2.2 NON-FLAMMABLE GAS	UN1977	120		

Oxygen	Oxygen, compressed	2.2 NON-FLAMMABLE GAS	UN1072	122		
Paint	Paint including lacquer, enamel, stain, shellac, solutions, varnish, polish, liquid filler, and lacquer base.	3 FLAMMABLE	UN1263	127		
Petro –gel Helitorch	Methanol	3 FLAMMABLE	UN1230	131		
Petroleum oil	Petroleum oil	3 FLAMMABLE	UN1270	128		
Plastic Spheres	Potassium Permanganate	5.1 OXIDIZER	UN1490	140		
Propane	Petroleum gases, liquefied	2.1 FLAMMABLE GAS	UN1075	115		
Saw bar & mix oil	Not regulated by DOT	None	None	None		
Wood Stain	Wood preservatives, liquid	3 FLAMMABLE	UN1306	129		

Total Weight		
Shipper's Signature	Location	
Pilot's Signature		

UN number Identification Number, ERG # Emergency Response Guide Number.

* Do not handle as a Hazard Material if it is in the original or appropriate shipping package.

Material marked not regulated by DOT is due to the amount, is smaller than the regulated amount.

Follow packaging instructions in Interagency Aviation Transport of Hazardous Materials. Handling of Hazard Materials Emergency Response Guidebook, and 49 CFR 172.101 Hazardous Materials Table.

