US Army Corps of Engineers®
EUROPE DISTRICT

Installation Management Agency,
EUROPE REGION

"YOU SPILL, YOU DIG II"

An environmental handbook for sustained deployment operations

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An environmental handbook for sustained deployment operations

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QUICK REFERENCE

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PREFACE

As a soldier you are the Army's first line of defense for protecting the environment. Protecting the environment is not always easy. This handbook was developed to help you prevent environmental accidents during sustained deployment operations.

This handbook is an environmental guide for use in the field. Simple spill prevention and response techniques are described to help you protect the environment and contribute to the success of your mission.

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PART 1

How to Use this Book

You Spill, You Dig II is a basic environmental guide for deployed soldiers. It is designed to be used in the field to guide you through each of the deployment phases. This is not a comprehensive reference for environmental protection– so if you have questions that are not addressed here, ask your Environmental Management Officer (EMO).

THIS HANDBOOK IS DIVIDED INTO 3 PARTS:

PART 1 describes the importance of pollution prevention, defines what hazardous materials and hazardous wastes are and goes on to list some that you will probably encounter.

PART 2 briefly presents what you need to know during each of the phases of contingency operations, while focusing on the sustainment phase. For more detailed information on the pre-deployment and deployment phases, take a look at the original *You Spill, You Dig Handbook.*

PART 3 includes what you need to do to be prepared for a hazardous materials spill and what to do in the event of a spill.

To help you quickly find the section you are looking for, the handbook is color-coded. The introductory information (Part 1) is coded in white, the prevention section (Part 2) is coded in green and the response section (Part 3) is coded in red.

Why Bother?

• To protect your health

When hazardous materials are not stored, used or disposed of correctly, you are in danger of being exposed to these harmful materials. Depending on the chemicals involved, such exposure can lead to health problems, such as loss of consciousness, brain damage, cancer, blindness, lung or skin damage, and many other health complications, not excluding death.

• To support the mission

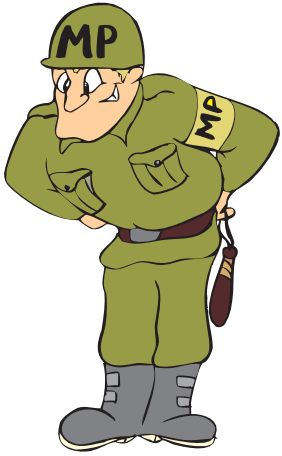
You need to be healthy to perform the military training and tactics required to ensure success in your mission. You will be dependent on the water, air and land in your deployment area. You will need to protect these resources from contamination for your own safety and use. Correct storage, use, and disposal of hazardous materials will serve to protect basic necessities, such as drinking water and the air you breathe.

• To save money

By preventing pollution, you can save the Army money. The Army is responsible for leaving an area in the same condition as it was before the contingency operation, therefore any contamination must be cleaned-up. Money spent on cleaning up the environment cannot be spent on equipment and training.

• It's an Order

Finally, you are under orders to protect the environment. You can be prosecuted if you do not follow these orders – it's that simple.



What are HM & HW?

A Hazardous Material (HM)

is any material that can be a risk to human health or the environment if it is improperly stored, handled, transported, labeled, or disposed of because it is:

- a health or physical hazard

- contains asbestos, mercury, or polychlorinated biphenyls, or

- can catch fire (flashpoint) under 200°F (93°C)

- A HM is also any material regulated by host nation authorities or specified by DA or USAREUR as hazardous, "special" or toxic.

A Hazardous Waste (HW)

is any discarded material (either solid, liquid, or gas) that if improperly managed, can create a risk to human health or the environment or has one of the following characteristics.

- **Ignitability** – can catch fire (flashpoint) under 140°F (60°C)

- **Corrosivity** – has a pH of 2 or less (that means it is very acidic), or has a pH of greater than or equal to 12.5 (or very basic)

- **Reactivity** – reacts violently or forms dangerous byproducts

- **Toxicity** – is poisonous

Examples of Common HM/HW

You may be surprised that many everyday materials you use are actually HM or HW, therefore special care must be taken when using or and disposing of these materials.

Fuel, Engine oil, Bleach,

Solvent, Anti-freeze,

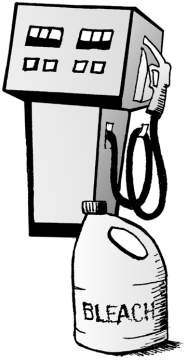
Transmission fluid,

Batteries,

Used oil filters,

and

Brake fluid.



HM/HW are often categorized by their characteristics:

CORROSIVES

OXIDIZERS

EXPLOSIVES

FLAMMABLES

REACTIVES

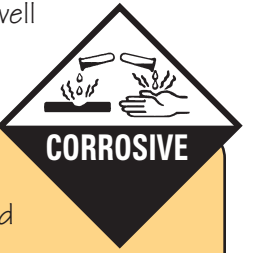
TOXICS

COMPRESSED GAS

CORROSIVES can burn skin or eyes upon direct contact. It is also important to know that they can corrode metals such as steel.

Examples include:

- SULFURIC ACID
- SPENT BLEACH
- HYDROCHLORIC ACID as well as dilute bases such as
- AMMONIUM HYDROXIDE



Hazards:

- Can be harmful, if breathed
- Can produce poisonous fumes, if burned
- May react violently with water
- May cause other combustible materials to catch fire
- Gases may build up resulting in a possible explosion
- May break down into corrosive or poisonous fumes

OXIDIZERS can react easily with other chemicals. They can cause other materials to catch on fire or cause fires to burn more fiercely.

Examples include:

- NITRIC ACID
- AMMONIUM NITRATE
- CALCIUM HYPOCHLORITE

Hazards:

- Always store oxidizers away from flammable or combustible material
- Oxidizers may also be corrosive
- May react violently with fuels
- Fires may produce poisonous fumes
- Avoid contact with skin and eyes

EXPLOSIVES can, in the presence of a heat source, static electricity or a spark, result in an explosion.

Examples include:

- AMMUNITION

Hazards:

- Keep all flares, flames or sparks away from explosive materials (i.e. no smoking)

- Dropping these materials may also cause them to explode

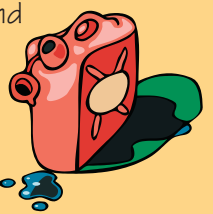
FLAMMABLE MATERIALS can burn fast, spread quickly to other areas, can give off intense heat and thick smoke. The vapors released from the compounds can be also be an explosion hazard.

Examples include:

- METHANOL
- SOLVENT
- FUEL

Hazards:

- Can be poisonous
- Evaporate easily and may make the area unsafe
- Keep all flames, sparks and flares out of the hazard area



REACTIVE MATERIALS *are unstable and can react on their own or very easily with other materials.*

Example:
LITHIUM BATTERIES

REACTIVE

Hazards:

- May ignite when exposed to water or air
- Can burn skin and eyes
- Can re-ignite after fire is extinguished
- Inhaling vapors can also be dangerous

TOXIC MATERIALS *are poisonous if breathed, touched or swallowed.*

Examples include:

- PESTICIDES
- ANTIFREEZE

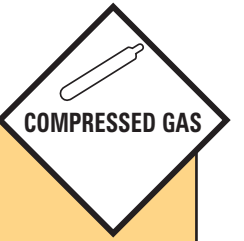
Hazards:

- May have effects such as vomiting or nausea, if swallowed or inhaled
- May be absorbed through the skin
- May have longer term effects such as cancer

COMPRESSED GASES must be stored in compressed gas cylinders. They may be hazardous because each cylinder contains a large amount of energy and may catch fire easily or explode.

Examples include:

- OXYGEN GAS



Hazards:

- Store away from flammable substances such oil, greases, and gasoline.
- Do not store in damp areas, or near salt, corrosive chemicals, fumes, heat, or direct sunlight.
- Store cylinders by gas type, separating oxidizing gases from flammable gases.
- All cylinders should be properly fastened
- Do not use lubrication on valve regulators.

PART 2
PREVENTION

Overview

In this section of the handbook, the various deployment stages are outlined and a discussion of the general necessary environmental activities are included. This section is to be used as a general guide to assist you during a sustained deployment operation – but remember if you have a specific question not covered here, talk to your EMO.

Phase	Unit action	What you need to do
Pre-deployment	Plan and pack	Prepare packing list
Deployment	Prepare equipment	Conduct maintenance
	On the move	Carry spill response equipment
	HW Accumulation Points	CHECK
	HW Storage areas	CHECK
Sustainment	Off Post vehicle fueling & Maintenance areas	Set up containment or use designated areas
	Hazardous material use and storage area	Ensure materials stored together are compatible
	Fire protection	Store flammables safely and know how to respond to a fire
Redeployment	Clearing camp	Inventory HM/HW and arrange pick-up
	Packaging and labeling	Ensure correct packaging and labeling
	Documentation	Make sure correct forms accompany HM/HW

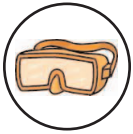
PRE-DEPLOYMENT

The pre-deployment phase involves planning and packing for deployment. The conditions will probably be very different from your home base, so you need to inform yourself and plan accordingly.

The result of your pre-deployment planning process will be a packing list. From this list you may need to order many of your items in advance. The National Stock Numbers (NSN) can be found in Appendix B.

Personal Protection Equipment (PPE)

It is important that you order and pack personal protection equipment or PPE. This includes faceshields, safety glasses, gloves, respirators, coveralls and shoe protectors.



- Your eyes are especially sensitive to many substances – so use safety glasses or faceshields to protect them when handling HM/HW.

- Gloves, coveralls and shoe protectors are to be worn to prevent your skin from coming into contact with harmful substances.

- Wear a respirator to protect your lungs from toxic fumes or vapors.

If you are not sure what kinds of PPE you should be using when handling a HM/HW, take a look at the exposure control/personal protection section of a product's MSDS (see Appendix A).

Item	NSN Number	Quantity to pack
Personal Protection Equipment		
Faceshields		
Safety glasses		
Gloves		
Coveralls		
Respirators		
Aprons		
Shoe protectors		
Spill Kits		
Rolls of plastic		
MSDS		
55-gallon drums		
Non-spark tools (shovel,pick)		
Drip pans		
Large funnels		
Rags		
Eye wash		
Wooden pallets		
Locks		
Other:		

DEPLOYMENT

During this stage, you will be on the move. You will now be transporting your packed items to the deployment area. While actually on the move, be sure to have a spill kit on hand or at least the following:

- **plastic bags**
- **shovel**
- **absorbent**
- **PPE**
- **drip pans**

And remember to check for leaks during stops.

Contractor responsibilities

The environmental contractors are usually responsible for setting up the hazardous waste/materials storage areas so that substances are correctly segregated for later transportation, storage and disposal.

HW ACCUMULATION POINTS

A HWAP is:

- located at or near the point of generation;
- where HW are accumulated until moved to a Hazardous Waste Storage Area (HWSA) or transported for treatment or disposal;
- under the control of the operator;
- limited to one approved container per waste type.

Make sure that:

- hazard signs are posted for each type of waste at the HWAP;
- full containers are either moved to the HWSA or picked up by the contractor within 5 days;
- turn-in documents or manifests are filled out whenever containers of HW are picked-up;
- you do not completely fill the containers. Liquids expand as the temperature increases, so you need to leave enough room for expansion.

General HM/HW Tip: *After you have finished adding or removing a substance, always close the container lid.*

HW STORAGE AREA

A HWSA:

- is a location where HW is collected before being picked up for treatment or disposal;
- must be operated to prevent contamination of water bodies and other potential dangers;
- may contain more than one container per waste type although HW should not be stored there for more than 1 year;
- will be maintained by a contractor.

General HM/HW Tip: *Reactive or ignitable wastes should be stored at least 50 feet (15 m) inside of the installation boundary.*

Make sure that:

- hazard signs are posted for each type of waste;
- HWSAs should not be located in areas prone to flooding;
- aisles in the HWSAs are at least 1 meter wide;
- unauthorized personnel are not able to enter the HWSA;
- no sparks, flames or other ignition sources are present in the HWSA;
- where flammable substances are stored, "No Smoking" signs are posted in English and the host nation language.

What do I need to do?

A contractor will probably be responsible for setting up, and possibly maintaining, the HW accumulation and storage areas, so make sure that you deposit materials in the correct places and follow the necessary procedures. Also, keep your eyes open to ensure that environmental protection measures are being correctly applied and do what you can to keep the place neat and orderly.

An easy way to remember what to look out for is

CHECK

Containment: Is secondary containment being used and is it in good condition?

HM/HW locations: Are the HW/HM areas well marked with warning signs, are they neat and orderly, and are they in a practical yet safe location.

Environmental documentation: Are you familiar with the MSDSs (see Appendix A) and spill plans and are they clearly posted and accessible?

Containers: Are the containers in good condition and are the lids closed when not in use?

Kits: Are spill kits located in all HM/HW areas and are they well-stocked and accessible?

If you notice a problem or have a question, notify your EMO or the environmental contractor.

SUSTAINMENT

During this stage, all major facilities and systems should be up and running. In this section of the handbook, you will find information on the use and storage of HMs, including which materials should not be stored together, as well as tips for off-post fueling practices and maintenance areas.

HM Use and Storage

In general, store HM using appropriate containers and secondary containment to prevent leaks. HMs will be clearly labeled in English and the host nation language with:

- the international name of the substance,
- the identification number of the substance
- the name, address and telephone number of the manufacturer, and
- the hazard symbol.

Incompatible Substances

Hazardous substances must be compatible if they are to be stored together. Storing incompatible materials with each other may result in an explosion, reaction, fire, and/or poisonous fumes. So it is important to store or dispose of incompatible substances separately.

So, which substances should not be stored with each other?

GENERAL INCOMPATIBILITIES

Reactives must be segregated from **Flammables**

Acids must be segregated from **Bases**

Corrosives should be segregated from **Flammables**

Oxidizers should be segregated from **Everything**

Most **organic reactives** (e.g. alcohols) must be segregated from **inorganic reactives** (e.g. metals)

Many corrosives are "water reactive", so keep these corrosives away from water.

Example HM/HW Incompatibiltiy Chart

FLAMMABLES

Carburetor Cleaners
Engine Cleaners
Adhesives, Rubber Cements
Fuels, Fuel Oil, Waste Fuels
Lacquers
Paints, Paint
Thinners,
Paint Wastes
Solvents:
Acetone, Benzene
Ethanol *(Ethyl Alcohol)*
Isopropanol
(Isopropyl Alcohol)

CORROSIVES (ACIDS)

Battery Acids
Degreasers
Engine Cleaners
Rust Removers
Most Acids

CORROSIVES (BASES)

Alkaline Battery
Acids
Alkaline Cleaners
Alkaline Degreasers
Potassium
Hydroxide
Rust Removers
Sodium Hydroxide

OXIDIZERS

Chlorine Gas
DS2
Nitric Acid
(Red Fuming Nitric)
Perchlorates, Perchloric Acid
Perioxides

REACTIVE METALS

Lithium *(Batteries)*
Aluminum
Beryllium
Calcium
Magnesium
Sodium
Zinc Powder

REACTIVE ORGANICS

Alcohols
Chromic Acids
Hypochlorides
(used for water treatment)
Organic Peroxides
(Hydrogen Peroxide)
Perchlorates
Sulfides

Never store the chemicals in one "Box" (e.g. flammables) with chemicals in another "Box" (e.g. corrosives)

As a reminder here are some examples of the types of materials you may be dealing with:

CORROSIVES

ACIDS (pH less than 2.0)

Battery acids,

Degreasers and engine cleaners,

Rust removers,

Sulfuric acid.

BASES (pH above 12.5)

Alkaline cleaners,

Alkaline degreasers,

Alkaline battery acids,

Rust removers,

Potassium hydroxide.

REACTIVES

REACTIVE METALS

Lithium batteries
Aluminum
Beryllium
Calcium
Sodium
Zinc powder

REACTIVE ORGANICS

Alcohols
Chromic acids
Hypochlorides
Organic peroxides such as hydrogen peroxide
Perchlorates

OXIDIZERS

Chlorine gas
Nitric acid
Sodium nitrate
Ammonium nitrate
Perchlorates

General HM/HW handling tip: *Do not place HW/HM in an unwashed container that previously contained an incompatible substance. Even the small remaining quantities of an incompatible material can be enough to cause a reaction.*

FLAMMABLES

Carburetor cleaners

Engine cleaners

Rubber cements, resins and adhesives

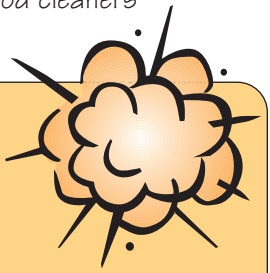
Fuels

Lacquers, paints, paint thinners

Ethyl benzene

Solvents such as benzene, acetone, carbon tetrachloride, methanol, toluene,stains, wax removers

Wood cleaners



Remember to avoid these dangerous combinations:

Acids + Oil or Grease = Fire

Acids + Caustics = Heat/spattering

Caustics + Epoxies = Extreme Heat

Flammable liquids + Hydrogen peroxide = Fire/ Explosion

Aluminum Powder + Ammonium Nitrate = Explosion

Sodium Cyanide + Sulfuric Acid = Lethal Hydrogen Cyanide

Chlorine Gas + Acetylene = Explosion

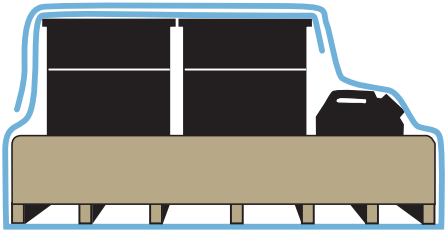
Ammonia + Bleach = Poisonous fumes

Off Post Vehicle Fueling and Maintenance Areas

Maintenance areas

- POL storage and waste areas should all have secondary containment.
- Minimize rainwater that collects in secondary containment areas by contructing makeshift raincovers (see example below)
- Water that does collect in the secondary containment should be disposed of as HW, if you are unable to test it.
- Clearly label and date waste accumulation containers.
- Segregate incompatible wastes (*see previous section*).
- Make sure additional dry sweep, PPE and spill kits are ordered as needed.

Raincover of Secondary Containment
Weatherproof sheeting is placed under HM and then wrapped back over it to prevent rainwater from collecting in the containment area.



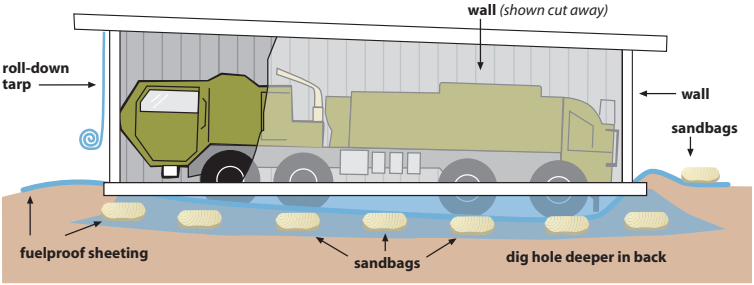
When refueling from a HEMMT:

- Remember to put on your goggles, gloves and reflector vest.
- Don't forget to set up your grounding rods.
- Ensure that your spill kit and spill equipment are easily accessible prior to fueling.
- Make sure you use your drip pan or roll-up containment to catch spills while fueling.
- If possible, use paved surfaces for refueling.

General Tip: In some locations, containment areas have been set up specifically for temporary refueling. If this is the case, use them when refueling.

The diagrams below show examples of a covered, secondary containment for overnight parking of fueling vehicles.

Front View



Side View - (shown cut away to reveal parking area trench)

Fire Protection

In order to prevent a fire you need to ensure that:

- Flammable materials are stored correctly.
- Smoking is prohibited in areas where flammable materials are stored and/or handled and that these areas are posted with "No smoking" signs.
- Keep any sparks or other sources of ignition away from flammable materials.
- Ensure that fire extinguishers and fire alarms are located in areas where flammable materials are stored.
- Ensure that the appropriate fire extinguisher is available. The letters A, B, C, or D will be marked on your fire extinguisher, they correspond to the class of the fire. *(see classification chart on following page).*
- Look over the relevant MSDSs (especially the fire fighting section) to inform yourself on how to react to a fire involving that substance.

FIRE CLASSIFICATION CHART

Class	Material	Examples	Fight with:
A	Ordinary combustibles	Wood, paper	Water or a multi-purpose, dry chemical extinguisher
B	Flammable liquids	Oil, grease, fuel	Dry chemical, CO_2 type extinguisher foam
C	Electrical equipment	Wires, motors	Dry chemical, CO_2 or a multi-purpose, dry chemical extinguisher
D	Combustible metals	Metal chips, turning	Dry powder extinguisher

In the event of a fire:

- Activate the emergency fire alarm or notify emergency help
- Protect yourself. If the fire is large, evacuate. Get yourself and others to safety. If the fire is small, put on protective gear.
- Keep in mind the presence of compressed gas cylinders or other substances that may explode when exposed to flames.
- Stay near an exit and make sure you don't get trapped.
- If the fire becomes too large… get out!

REDEPLOYMENT

During the redeployment phase, you will be clearing camp and restoring the area to its pre-deployment condition. Remember, the area will be handed back over to the host nation, once all soldiers and equipment have been moved out.

How to Clear Camp

You should not be transporting any HM/HW!

Transporting hazardous substances is dangerous to the driver, other motorists, as well as populations in the area of a potential release. The environmental contractors will be responsible for packaging, labeling, and transporting all HM and HW.

What you need to do:

- Identify all HMs and HWs that need to be picked-up, how much of it exists and where it is located.
- Contact the appropriate person/contractor to arrange a pick-up appointment.
- Identify all unused, unopened HM that will no longer be needed and let the environmental contractor know what it is, how much there is, where it is and that it is unopened.
- Any HMs that have exceeded their expiration date should be disposed of as HW. Notify the contractor, if that is the case.

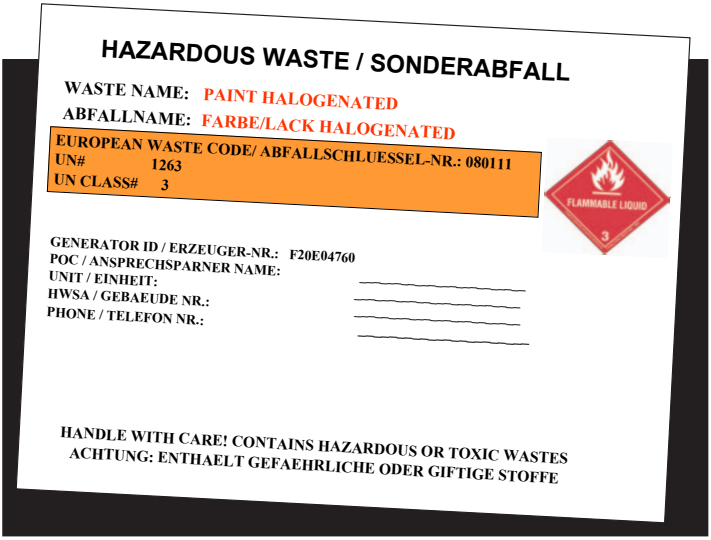
Packaging and Labeling

The contractor will also be responsible for preparing HW for transportation. This will involve ensuring that they are packaged and labeled correctly. The contractor may have already provided appropriate containers for the storage and transportation of HW.

Make sure that prior to transportation:

- all containers are in good condition, properly closed, secured and palletized.
- the containers are compatible with the substance they are holding and, where needed, an inner coating or lining is provided.
- incompatible substances are segregated according to MSDS guidelines.

- the containers are properly labeled, including the
  - European Waste Catalogue number
  - hazard symbol



If pre-printed labels are not available, the same information should be clearly marked on the container, waterproof and firmly attached.

Documentation

When a contractor is picking up hazardous substances:

1) the type and quantity of waste/material will be noted on a transfer of custody form.

2) the HM/HW must be accompanied by the corresponding MSDS.

3) the contractor will need your signature to document the waste and quantity being picked-up.

All hazardous substances leaving a U.S. facility must be accompanied by these forms to help track the HW from one point to another.

Conclusion

As a review:

1) During pre-deployment, prepare a packing list, and order needed supplies.

2) During deployment and sustainment, CHECK all areas where hazardous substances are used, accumulated, or stored.

3) Be aware of which HMs are incompatible.

4) Set-up containment for your off-post refueling areas.

5) During redeployment contact your EMO or contractor to arrange a pick-up of the HM/HW your unit will be shipping out.

PART 3
RESPONSE

Regardless of the precautions taken to prevent spills, you may be in a situation where you must respond to a spill. Without the proper equipment, training, or knowledge, you may be helpless to respond to a spill, or worse – your actions may result in more serious damage.

Part 3 of this handbook instructs you on adequate spill response.

Part 3 is divided into 2 sections

1) SPILL RESPONSE:

provides guidance on how to be prepared to respond to a spill.

2) THE SPILL DRILL:

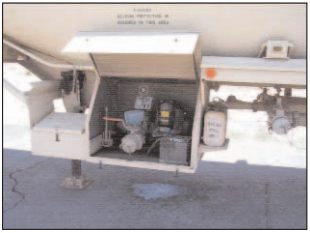
describes what actions to take in the event of minor, intermediate, or major spills.

First, some definitions:

What is a spill?

Any unplanned release, either accidental or deliberate, of a hazardous substance.

What is the difference between minor, intermediate, and major spills?



Minor spill

Major spill

- A **minor spill** is less than 25 gallons (roughly 95 liters) and does not pose a significant safety or health hazard.

- **An intermediate spill** is approximately 25-55 gallons (95-210 liters).

- A **major spill** is 56 gallons or more (>211 liters), or any spill into water where injuries have occurred.

What is a spill plan?

Each deployed unit should have a spill contingency plan (SCP).

The SCP:

- describes what you need to do to respond quickly and effectively to spills to minimize harm to human health, property, and the environment.

- should be posted at every HM/HW storage area. It is critical to conduct drills periodically so you know exactly what to do in an emergency.

What is an MSDS?

A Material Safety Data Sheet (MSDS) presents critical information on the materials' chemical and physical properties and hazard information. See Appendix A for more information on MSDS.

What is my responsibility?

You need to be aware! Look out to make sure that HM/HW are being used, stored, and labeled correctly. Know what to do in the event of a spill and train regularly.

What Role Does the Environmental Contractor Have?

Spill preparation:

On some bases, contractors are retained to manage locations where HMs are handled. Typical locations include maintenance and fueling operations and HM/HW storage locations.

The contractors are responsible for spill prevention at these areas including:

- providing proper signage
- constructing proper secondary containment
- maintaining spill equipment

Spill response:

Spill response contractors are also employed by the Army to provide spill response services. If this is the case, in the event of a spill, the only thing you have to focus on is protecting yourself and others (i.e. evacuate the area if necessary) and contact the DPW or the spill contractor to take over. Use page 75 to note important phone numbers.

SECTION 1: SPILL RESPONSE

So, what do you need to do to respond effectively to a spill? You will need the necessary spill response equipment on hand, as well as training on how to use the equipment. Spill response training should be carried out regularly.

TRAINING

Just reading what you should do in the event of a spill in your SCP is not enough. You need to train. Going through the physical actions of how to respond will help you to identify gaps or problems with your response plan.

The frequency and intensity of training is also related to the volume of HM handled. Training should include scenarios of the most likely spill that may occur. Unannounced or mock spill exercises are a good way to evaluate how prepared you are for a spill. Track the effectiveness of training by noting your response time.

SPILL RESPONSE EQUIPMENT

Ensure that you have enough spill response equipment and materials on hand, in the event of a major spill. Make sure the equipment is accessible, i.e. don't keep it locked up.

At a minimum, order and maintain the following (see Appendix B for NSN numbers):

- 5 gallon, open-ended drums
- Overpack drums
- Shovels (non-sparking)
- Flashlights (non-sparking)
- Fire extinguishers
- Absorbent booms
- Brooms
- Oil Dry (50 lbs)
- Portable chemical eye wash
- Rubber gloves
- Rubber mallet
- Protective footwear
- Protective eyewear
- Drip pans
- Rags
- Plastic bags
- Pallets
- Plastic tarps (30 mil)
- Sandbags
- Spill response kits

You can estimate the quantity to order by looking at the volume of HM and by looking at the volume of the largest containers.

SPILL RESPONSE KITS

Spill response kits should be located in all areas where HM/HW are used, accumulated, handled. Various types of spill kits are available. See Appendix B for NSN numbers. Some kits are geared for oil products only, while others are customized for both oil and HM.

At a minimum, the spill kits will contain:

- pads
- socks
- gloves
- goggles and
- disposable bags

An individual should be designated as responsible for maintaining the spill kit and ensuring that it is stocked and accessible at all times.

SECTION 2: THE SPILL DRILL

Now you have the spill response equipment that you need and you have undergone training. So, what do you need to do in the event of a spill? Just remember the Spill Drill.

1. **PROTECT YOURSELF**
2. and **REACT**

1. TO PROTECT YOURSELF,

you first need to assess or check the scene to determine the severity of the spill.

By asking the following questions, determine if:

1) emergency help/contractor is needed or

2) Protective gear is necessary

- **WHAT** substance is being spilled?
  If the substance is a corrosive (e.g. battery acid), you will need protective gear. If the substance is a poisonous gas, you should evacuate and call for help.

- **HOW BIG?** How much has been spilled?

  <25 gallons is considered a minor spill,

  26-55 gallons is an intermediate spill and

  >55 gallons is a major spill. Any spill into or close to a water body is also considered a major spill. In the event of any major spill, call for emergency help.

Consider the following in your determination:

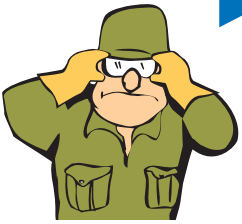
- Is the spill still occurring and if so, is the spill spreading fast?
- Is there a large volume remaining that can be spilled?
- Do I have the necessary equipment and know-how to respond to this spill?

From this information determine:

Is the scene safe for myself and other soldiers to respond to the spill?

No. Then evacuate the area immediately and call for emergency help.

Yes. Put on necessary protective gear (i.e gloves, goggles and suits) and...



2. REACT

Remove the Source

Determine how the source of the spill can be stopped to limit the amount spilled.

Envelop the spill

Circle the spill area with absorbent materials to stop the spread of the spill and to keep it from entering waterways.

Absorb/Accumulate

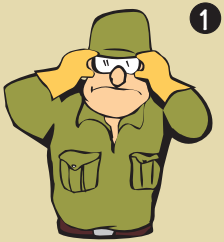
Use more absorbent material to soak up the spill from the spill area.

Containerize/clean-up

If you are trained to do so, collect the contaminated soil and absorbent materials and place in an appropriate container.

Tell your supervisor

Report what you spilled, where it occurred and what you did to respond to the spill. For intermediate or major spills, fill out a Spill Report Form (see page 74).



1 Protect Yourself

2 Remove the Source

3 Envelop the Spill

4 Absorb/ Accumulate

5 Containerize/ Clean-up

6 Tell Your Supervisor or Transmit a Report

Some Examples of REACTions

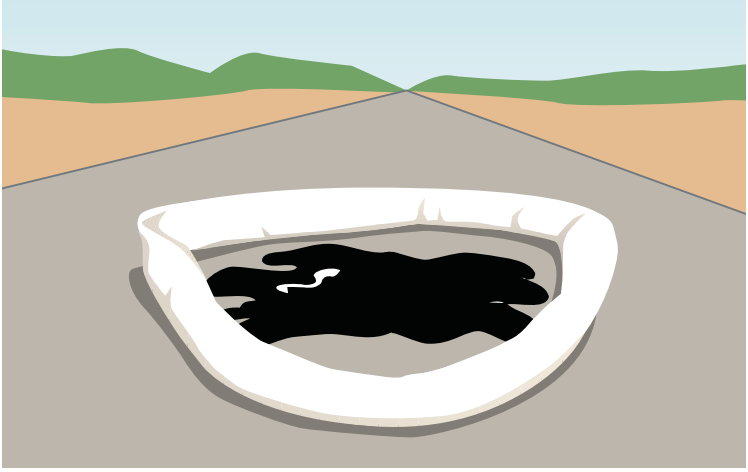
Remove the source

- If a barrel is leaking, stop the leak with putty or place in an overpack drum.
- If oil is leaking from a vehicle, use drip pans to catch the oil and conduct maintenance on the vehicle to minimize or eliminate these leaks.

- Tighten loose connections
- Close valves
- Stop pumps
- Shut-down power

Envelop the spill

- Put down an absorbent pad or sock to stop the flow
- Use absorbent booms to curb the spill
- Use booms or pads to block the spill from entering waterways
- Use your shovel to build a small dam to stop the spill from flowing
- Put down portable containments



Absorb/Accumulate within the enveloped area

- If the spill is on a hard surface, put down dry sweep to soak up the spill
- If the spill is on a mud or gravel surface, put down absorbent pads

Clean/containerize

- Place used absorbent pads, socks, booms, etc. in a plastic bag or container.
- If the spill is <25 gallons, dig up the contaminated soil, place it in a bag or drum.
- Bring the contaminated materials used to clean up the spill, (i.e soil, padding, containers, and liquids,) to the nearest HW collection point for disposal.
- For spills >25 gallons, notify your supervisor so properly trained individuals can respond accordingly.

Tell your supervisor/Transmit a Spill Report

- For minor spills, tell your supervisor what you spilled, when and where it occurred and how you responded
- For larger spills, transmit a spill report

SPILL REPORT FORM

In your Spill Report you need to include:

Your name: _____

Your Unit: _____

Local Time and Date of Spill: _____

Spill Location: Base camp and/or Grid coordinates _____

Source of Spill: (AST, tanker truck, unknown etc.) _____

_____

Estimate of how much was spilled (in gallons or liters) _____

Substance spilled (gasoline, JP-4, etc) _____

Operation underway when spill occurred (fueling, repair work, etc)

_____

Cause of spill (e.g. faulty tank level indicator, monitoring error, collision, etc.)

_____

Description of area: (proximity to water, note damage to health, property, wildlife etc. whether on US controlled property or adjacent property)

_____

_____

Description of action taken: _____

_____

Contact information for additional information (name, rank, DSN and commercial phone number) _____

_____

Emergency Contact Information in the Event of a Spill

Minor spill

(under _____ gallons, or _____ liters)

Contractor name: _____

Emergency contact number: _____

_____

Intermediate or major spill

(over _____ gallons, or _____ liters)

Contractor name: _____

Emergency Contact number: _____

_____

APPENDICES

APPENDIX A

Material Safety Data Sheet

Q: What is an MSDS?

A: An MSDS (which stands for Material Safety Data Sheet (MSDS),

1. is a form which provides you with the proper procedures for handling, working with or storing a particular hazardous material
2. must be provided to you by the chemical manufacturer
3. must be stored in all areas where HMs are located

BEWARE: All MSDSs do not have the same format but they still include the same basic information.

What information is included in the MSDS?

1. Chemical Product and Company Information
2. Composition/Information on Ingredients
3. Hazards Identification
4. First Aid Measures
5. Fire Fighting Measures
6. Accidental Release Measures
7. Handling and Storage
8. Exposure Control/Personal Protection
9. Physical and Chemical Properties
10. Stability and Reactivity
11. Toxicological Information
12. Ecological Information
13. Disposal Considerations
14. Transportation Information

1. CHEMICAL PRODUCT AND COMPANY INFORMATION includes

- the name of the manufacturing company
- common trade names of the chemical
- assistance or emergency phone numbers

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

DIESEL FUEL NO. 2

PRODUCT NUMBER(S):

CPS220122	CPS225114	CPS225115	CPS225150
CPS266176	CPS270005	CPS271006	CPS272093
CPS272102	CPS272126	CPS272152	CPS272185
CPS272190	CPS272593	CPS272601	CPS272693
CPS272793	CPS273003	CPS273030	CPS273053

SYNONYM: Diesel Fuel Oil
Gas Oil
HS Diesel 2
HS Heating Fuel 2
LS Diesel 2
LS Heating Fuel 2
Marine Diesel
RR Diesel Fuel

COMPANY IDENTIFICATION
Chemical Company
Marketing, MSDS Coordinator
7000 Anystreet Rd.
Anytown, PA 22222

EMERGENCY TELEPHONE NUMBERS
HEALTH (24 hr): (800) 555-0000 or
(510) 555-0000 (International)
TRANSPORTATION (24 hr):
(800) 555-0000 or (703) 555-0000
Emergency Information Centers are located in U.S.A.
Int'l collect calls accepted

PRODUCT INFORMATION: MSDS Requests
(800) 555-0000
(510) 555-0000 Technical Information

2. COMPOSITION/ INFORMATION ON INGREDIENTS

contains CAS (Chemical Abstract Service) numbers and a list of the ingredients making up the product.

2. COMPOSITION/INFORMATION ON INGREDIENTS

100.0 % DIESEL FUEL NO. 2

CONTAINING COMPONENTS	AMOUNT	LIMIT/QTY
DIESEL FUEL NO. 2 Chemical Name: FUELS, DIESEL, NO. 2 CAS68476346	100.00% 1000 mg/m3	350 mg/m3
POTENTIALLY INCLUDING		
HDS DISTILLATE, MIDDLE Chemical Name: DISTILLATES, HYDRODESULFURIZED MIDDLE CAS64742809	NONE	NA
GAS OIL, LIGHT Chemical Name: DISTILLATES, STRAIGHT RUN MIDDLE CAS64741442	NONE	NA
KEROSENE Chemical Name: KEROSINE CAS8008206	NONE	NA
HYDRODESULFURIZED KEROSINE Chemical Name: KEROSINE, HYDRODESULFURIZED CAS64742810	NONE	NA
CAT CRACKED DISTILLATE, LIGHT Chemical Name: DISTILLATES, LIGHT CATALYTIC CRACKED CAS64741599	NONE	NA

TOTAL SULFUR, MASS %
< 0.50%

COMPOSITION COMMENT:
All the components of this material are on the Toxic Substances Control Act Chemical Substances Inventory.

3. HAZARDS IDENTIFICATION

includes descriptions of what types of effects can be expected in the case of inhalation, ingestion, eye or skin contact.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Clear to pale yellow liquid if undyed, red liquid if dyed with a faint petroleum hydrocarbon odor.

- COMBUSTIBLE LIQUID AND VAPOR
- HARMFUL OR FATAL IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE
- CAUSES SKIN IRRITATION
- POSSIBLE CANCER HAZARD - CONTAINS MATERIAL THAT MAY CAUSE CANCER BASED ON ANIMAL DATA

IMMEDIATE HEALTH EFFECTS

EYE:
Not expected to cause prolonged or significant eye irritation.

SKIN:
Contact with the skin causes irritation.

INGESTION:
Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death.

INHALATION:
Excessive or prolonged breathing of this material may cause central nervous system effects. Mists of this material may cause respiratory irritation.

4. FIRST AID MEASURES

describes what to in case of exposure to the substance.

4. FIRST AID MEASURES

EYE:
No specific first aid measures are required because this material is not expected to cause eye irritation. As a precaution remove contact lenses, if worn, and flush eyes with water.

SKIN:
Wash skin immediately with soap and water and remove contaminated clothing and shoes. Get medical attention if irritation persists. Discard contaminated clothing and shoes or thoroughly clean before reuse.

INGESTION:
If swallowed, do not induce vomiting. Give the person a glass of water or milk to drink and get immediate medical attention. Never give anything by mouth to an unconscious person.

INHALATION:
Move the exposed person to fresh air. If not breathing, give artificial respiration.
If breathing is difficult, give oxygen. Get medical attention if symptoms continue.

NOTE TO PHYSICIANS:
Ingestion of this product or subsequent vomiting can result in aspiration of light hydrocarbon liquid which can cause pneumonitis.

5. FIRE FIGHTING MEASURES

provides information on fire prevention and response. Such information includes the following:

5. FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:
OSHA Classification (29 CFR 1910.1200): Combustible liquid.
See section 7 for appropriate handling and storage conditions.

FLAMMABLE PROPERTIES:
FLASH POINT: (P-M) 125F (52C) Minimum
AUTOIGNITION: 494F (257C) NFPA 325M, FO #2
FLAMMABILITY LIMITS (% by volume in air): Lower: 0.6 Upper: 4.7

See definition below

EXTINGUISHING MEDIA:
CO2, Dry Chemical, AFFF Foam.
NFPA RATINGS: Health 0; Flammability 2; Reactivity 0.

FIRE FIGHTING INSTRUCTIONS:
Use water spray to cool fire-exposed containers and to protect personnel.
For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

COMBUSTION PRODUCTS:
Normal combustion forms carbon dioxide and water vapor; incomplete combustion can produce carbon monoxide.

- **Flash point** is the lowest temperature at which a liquid can ignite. The lower the flash point, the easier it is to ignite the material. For example, gasoline has a flash point of -40°F (-40°C) and is more flammable than transmission fluid, which has a flash point of 178°C (352° F).

- The **auto-ignition temperature** of a substance is the temperature at which a material will catch fire without an external spark or flame. Storing a substance anywhere near its autoignition temperature is a severe safety hazard. Do not store flammable substances in hot areas such as 1) sheds or cabinets exposed to direct sunlight; 2) adjacent to furnaces, hot water heaters or boilers; or 3) places where flames or heat are often used. Know a substance's autoignition temperatures to prevent/respond to a fire.

- **Extinguishing media** describes materials used to fight a fire involving this HM.

- **Fire fighting instructions** describe steps to respond to a fire and sometimes more importantly, what not to do.

6. ACCIDENTAL RELEASE MEASURES

includes instructions for containing and cleaning-up a spill. The MSDS also includes which equipment to use to contain or absorb the spill and other helpful information, such as emergency phone numbers.

6. ACCIDENTAL RELEASE MEASURES

EMERGENCY NUMBER
(24 hr): (800) 555-0000 or (703) 555-0000
International Collect Calls Accepted

ACCIDENTAL RELEASE MEASURES:
Eliminate all sources of ignition in the vicinity of the spill or released vapor.

Stop the source of the leak or release. Clean up releases as soon as possible, observing precautions in Exposure Controls/Personal Protection.
Contain liquid to prevent further contamination of soil, surface water or groundwater. Clean up small spills using appropriate techniques such as sorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Follow prescribed procedures for reporting and responding to larger releases. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations. Contact local environmental or health authorities for approved disposal of this material.

Release of this product should be prevented from contaminating soil and water and from entering drainage and sewer systems. U.S.A. regulations require reporting spills of this material that could reach any surface waters. The toll free number for the U.S. Coast Guard National Response Center is (800) 424-8802.

7. HANDLING AND STORAGE

includes guidance on how to safely use and store the material

7. HANDLING AND STORAGE

Liquid evaporates and forms vapor (fumes) which can catch fire and burn with explosive force. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Fire hazard is greater as liquid temperature rises above 85F.

Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating an accumulation of electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.

Do not use or store near heat, sparks, or open flames. Use or store only in a well-ventilated area. Keep container closed when material is not in use.

WARNING! Do not use as portable heater or appliance fuel. Toxic fumes may accumulate and cause death.

Do not taste or swallow. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Keep out of reach of children.

8. EXPOSURE CONTROL/ PERSONAL PROTECTION

includes recommendations on ways to prevent exposure as well as personal protective equipment (PPE) to wear when working with the HM.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS

If user operations generate airborne material, use process enclosures, local exhaust ventilation, or other engineering controls to control exposure.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION:

No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

SKIN PROTECTION:

No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances. Suggested materials for protective gloves include: <Nitrile> <Viton> <Chlorinated Polyethylene (or Chlorosulfonated Polyethylene or CPE)> <Polyurethane>

RESPIRATORY PROTECTION:

If user operations generate harmful levels of airborne material that is not adequately controlled by ventilation, wear a NIOSH approved respirator that provides adequate protection. Use the following respirators: Organic Vapor.

9. PHYSICAL AND CHEMICAL PROPERTIES includes

- A description of the appearance and odor
- **Boiling Point** - Knowing the boiling point of a substance is an important consideration for storage. For example, storing a chemical with a boiling point of 50 °C (122°F) in direct sunlight or next to a boiler could cause the material to completely vaporize, resulting in a fire or explosion.

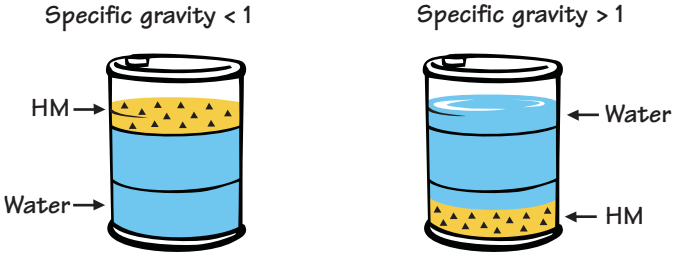
9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DESCRIPTION:
Clear to pale yellow liquid if undyed, red liquid if dyed with a faint petroleum hydrocarbon odor.

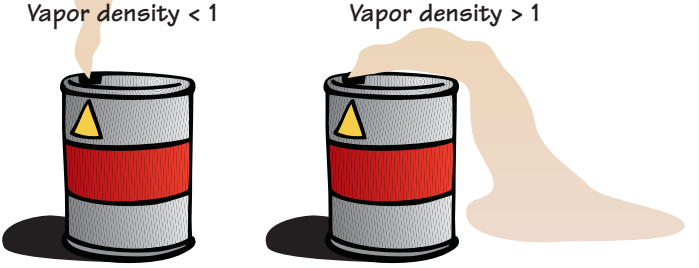
pH:	NA
VAPOR PRESSURE:	0.4 kPa @ 40C (approximate)
VAPOR DENSITY (AIR=1):	>1
BOILING POINT:	176 - 370C (348-698F)
FREEZING POINT:	NA
MELTING POINT:	NA
SOLUBILITY:	Soluble in hydrocarbon solvents; insoluble in water.
SPECIFIC GRAVITY:	0.84 @ 15.6/15.6C (typical)
VISCOSITY:	1.9 - 4.1 cSt @ 40C

See next page for definitions

• **specific gravity** - If the weight (or specific gravity) of the HM is less than 1, the product will float in water whereas if the number is greater than 1, the product will sink. This is important to know for fire fighting purposes.



• **vapor density** - if the vapor density is greater than 1, the vapor from this material will sink to the ground, if the vapor density is less than 1, the vapor will tend to float up to the ceiling.



10. STABILITY AND REACTIVITY

describes how stable the product is and which storage conditions to avoid. This section also includes a listing of incompatible substances.

10. STABILITY AND REACTIVITY

HAZARDOUS DECOMPOSITION PRODUCTS:
None known

CHEMICAL STABILITY:
Stable.

CONDITIONS TO AVOID:
See section 7.

INCOMPATIBILITY WITH OTHER MATERIALS:
May react with strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

HAZARDOUS POLYMERIZATION:
Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

presents the types of effects expected following exposure to the substance. Effects from both acute and chronic exposure may be included.

Acute exposure describes the negative or harmful effects from being exposed to the HM one time.

Chronic Exposure describes the harmful effects that can occur from long-term exposure to the HM. The term can also mean being repeatedly exposed to the HM for short periods of time.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS:
Minimal effects clearing in less than 24 hours.

SKIN EFFECTS:
Moderate irritation at 72 hours. (Moderate erythema). The acute dermal LD50 in rabbits is >5 ml/kg. This material did not cause skin sensitization reactions in a Buehler guinea pig test.

ACUTE ORAL EFFECTS:
The acute oral LD50 in rats is > 5 ml/kg.

ACUTE INHALATION EFFECTS:
The 4-hour inhalation LC50 in rats is > 5 mg/l.
The data above is obtained from studies sponsored by the American Petroleum Institute.

CHRONIC EFFECTS/CARCINOGENICITY:
This product may contain significant amounts of polynuclear aromatic hydrocarbons (PAH's) which have been shown to cause skin cancer after prolonged and frequent contact with the skin of test animals. Brief or intermittent skin contact with this product is not expected to have serious effects if it is washed from the skin. While skin cancer is unlikely to occur in human beings following use of this product, skin contact and breathing of mists or vapors should be reduced to a minimum.

The National Institute of Occupational Safety and Health (NIOSH) has recommended that whole diesel exhaust be regarded as potentially causing cancer. This recommendation was based on test results showing increased lung cancer in laboratory animals exposed to whole diesel exhaust.

12. ECOLOGICAL INFORMATION

includes the effects the substance may have on plants and animals and how readily the substance will disintegrate in the environment.

12. ECOLOGICAL INFORMATION

ECOTOXICITY:
A series of studies on the acute toxicity of 4 diesel fuel samples were conducted by one laboratory using water accommodated fractions. The range of effective (EC50) or lethal concentrations (LC50) expressed as loading rates were: The 96-hour LC50 for rainbow trout (Salmo gairdneri) is
21-210 mg/l. The 48-hour EC50 for daphnia (Daphnia magna) is 20-210 mg/l. The 72-hour EC50 in alga (Raphidocellus subcapitata) is 2.6-25 mg/l.

ENVIRONMENTAL FATE:
On release to the environment the lighter components of diesel fuel will generally evaporate but depending on local environmental conditions (temperature, wind, mixing or wave action, soil type, etc.) the remainder may become dispersed in the water column or absorbed to soil or sediment. Diesel fuel would not be expected to be "readily biodegradable". In a modified Strum test (OECD method 301B) approximately 40% biodegradation was recorded over 28 days. However, it has been shown that most hydrocarbon components of diesel fuel are degraded in soil in the presence of oxygen. Under anaerobic conditions, such as in anoxic sediments, rates of biodegradation are negligible.

13. DISPOSAL CONSIDERATIONS

describes procedures on how to safely dispose of the substance.

13. DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by USEPA under RCRA (40CFR261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

14. TRANSPORTATION INFORMATION *provides*

- *the shipping name*
- *the Department of Transportation (DOT) hazard class*
- *and the DOT classification or identification number*

14. TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT SHIPPING NAME: GAS OIL

DOT HAZARD CLASS: COMBUSTIBLE LIQUID

DOT IDENTIFICATION NUMBER: UN1202

DOT PACKING GROUP: III

Q: Where can I find MSDSs?

A: i. The manufacturer is required to provide MSDSs for all HM purchases (so don´t throw them away).

ii. The internet is another source for MSDSs that you may need. Here is a web page useful in tracking down specific MSDSs: http://www.msdssearch.com/msdssearch.htm.

Below is a listing of website addresses posting MSDSs for commonly used materials. Make sure that MSDSs you download are appropriate for the material you are using (i.e. fuel can be leaded, unleaded, diesel, etc.)

- **Fuel** (http://www.mapl.com/msds/msds/fuel.html, http://www.brownoil.com/msdsdiesel.htm also includes definitions of MSDS terminology)
- **Engine Oil** (http://www.chevron.com/prodserv/fuels/msds.html)
- **Bleach or DS-2** (http://florawww.eeb.uconn.edu/msds/bleach_msds.pdf)

- **Solvent** (http://www.senpro.com/msds/740c.htm, short)
- **Antifreeze** (http://library.cbest.chevron.com/lubes/ehlchevmsdsv9.nsf/a37a566cb6e34c88882569cf0002e997/9de096333d12be12882569b500129674? OpenDocument)
- **Transmission fluid** (http://www.gulfoilmanila.com/msd_2000data/msds.Synthetic%20Transmission%20Fluid.htm), http://library.cbest.chevron.com/lubes/chevmsdsv9.nsf/db12c751d5603b418825681e007cddb3/5e192e58101b2c4d882568b90008db5a?OpenDocument
- **Brake fluid** (http://www.gulfoilmanila.com/msd_2000data/msds.Brake%20Fluid.htm)

Q: Where can I go for help in understanding the information on an MSDS?

A: The language used in MSDSs may not be easy to understand. The following web sites contain tools that may help to translate some of the information for you. For example, http://www.ilpi.com/msds/ref/index.html contains a hyperglossary, or dictionary, of technical terms in easy-to-understand language.

Other helpful web pages include:
http://ccinfoweb.ccohs.ca/help/msds/msdsINTGUIDE.html)
(www.ilpi.com/msds/faq/parta.html.

APPENDIX B

National Stock Numbers (NSN) for Hazardous Materials/Hazardous Waste supplies

Item	NSN Number
Containers (DOT or Equivalent)	
Bottle, plastic 13 gal.	8125-00-731-6016
Bottle, plastic 5 gal.	8125-00-888-7069
1 gal. steel drum (17C), open top	8100-01-128-6819
5 gal. Steel drum (17C), open top	8100-00-282-2520
30 gallon steel drum, open top	8110-00-366-6809
55 gal. steel drum (17 M), open top	8110-00-030-7780
Drum polyethylene 55 gal., open top	8110-01-282-7615
Dry Sweep or Absorbents	
Clay ground (UL-bag)	7930-00-269-1272
Non-skid absorbent (UL-40 bag skid)	1939-01-154-7001
1 cubic foot bag - 4/case	4235-01-423-1466
2 cubic foot bag - 3/case	4235-01-423-0711
6lb. bag Oclansorb	4235-01-431-9896

18lb. bag Oclansorb	4235-01-431-9900
Loose absorbent 1 CF bag (4/case)	4235-01-423-1466
Loose absorbent 2 CF bag (3/case)	4235-01-423-0711
500 lb. Super sack granular absorbent	4235-01-459-1839
1825 lb. Super sack granular absorbent	4235-01-459-1843
44 lb. bag of granular absorbent	4235-01-459-1845
30 lb. pail of granular absorbent	4235-01-459-1847

Pads, socks and booms

18"x18"x3" pad - 30/case	4235-01-423-1463
2" x 10' sock - 20/case	4235-01-423-1467
4" x 8' sock - 10/case	4235-01-423-1465
10" x 10' boom - 3/case	4235-01-423-2787
2" X 4" Sorb Sox	4235-01-391-2046
4" X 4" Sorb Sox	4235-01-431-9993
8" X 4" Sorb Sox	4235-01-391-2048
10" X 8" Boom	4235-01-391-2050
Peat Pads	4235-01-391-2052
Ultra granules	4235-01-417-1958
Absorbent sheets	4235-01-417-1959

Rectangular absorbent Pads 46"x72", 25/box	4235-01-459-1787
Circular Drum pads (22" diameter), 150/box	4235-01-459-1783
Absorbent Sheet Material (4'x500' rolls)	4235-01-459-1796
4 Circular Pads, & 10 lbs. Granular Absorbent	4235-01-459-1794

Spill Kits

Water resistant nylon tote bag spill response kit	4235-01-432-7909
25 gal. drum spill kit	4235-01-432-7912
55 gal. drum spill kit	4235-01-423-7214
55 gal. drum w/One barrel spill kit	4235-01-423-7221
14 gal. spill kit	4235-01-391-3113
55gal. Spill Kit	4235-01-391-3110
55 gal. Bulk Filled	4235-01-391-2047
Small Camo Spill Kit	4235-01-420-0905
Large Camo Spill Kit	4235-01-420-0895

APPENDIX C

Additional Information Resources

1. Materials

Most deployments involve movement of your unit and equipment through various staging areas and transient base camps until you reach your final position. These camps have either a military commander, or perhaps a "mayor" who can tell you where to obtain the basic construction materials needed to provide the simple secondary containment and other preventive measures that you require.

In a modern military deployment, there are a host of military and civilian contingents that can help support your HM/HW program. Some of these organizations include:

- US Navy SEABEE construction teams
- US Air Force RED HORSE construction units
- US Army Engineer battalions
- Civilian contractors building base camps

They can provide you with the items you need for the short term.

Another source is your Field Ordering Officer (FOO) and Class A Agent. These soldiers have the responsibility of ordering low cost items necessary for your unit to operate in the field. You must be sure that the FOO understands that the use of these materials is required to comply with your orders to protect the environment.

2. Technical Personnel

When you are not sure what should be done, you can always request assistance from various technical personnel. Each base camp or transient location should have access to qualified environmental personnel.

- **Base Camp Commander or Mayors Office.** Depending on the technical need, they should be able to refer you to the civilian or military person with the technical expertise you require. If this does not work, follow the chain of command.
- **U.S. Army Corps of Engineers Field Office or a Base Camp Construction Agency (BCCA).** Generally, base camps are supported by either a Corps of Engineers Field Office or a Base Camp Construction Agency (BCCA). These people act in in a capacity similar to the Department of Public Works (DPW) at home station. They are there to assist your unit accomplish its mission successfully.

- **Civilian contractor.** It is recommended that you go through your chain of command first before contacting a contractor. However, these civilians are usually under contract to provide HM/HW disposal services and have technical qualified personnel on their staff.
- **Headquarters.** Your next higher headquarters should have access to the US Army Corps of Engineers technical expert for environmental matters who is directly responsible for your deployment.

3. Reference Material

- **This handbook.** In Appendix D there is a list of applicable documents and web sites. If you need more information, look further in this book.
- **Technical Personnel.** For a specialized problem, contact the on-site or in-country technical personnel as detailed above. They may have access to the material that you need.
- **U.S. Army Corps of Engineers Field Office or a Base Camp Construction Agency (BCCA).** These professionals have reference material and information gained from other contingency operations and are ready and willing to assist you.

- **Internet.** If you have access to a computer and the Internet, the US Department of Defense publishes useful technical information on the Internet. Be sure to visit the Defense Environmental Network and Information Exchange (DENIX) at https://www.denix.osd.mil/. See Appendix D for further Internet addresses, including where you can access MSDSs.

APPENDIX D

REFERENCES

1) *You Spill, You Dig: An Environmental Handbook for Deployment.*

2) *Final Governing Standards* (FGS) Germany, 2002.

3) DLA, *Hazardous Materials, Storage and Handling Book.* March 1998.

4) USACHPPM, *DRAFT Commanders Guide to Environment, Safety and Occupational Health Considerations in Contingency Operations.* June 2002.

5) USAREUR Approved Base Camp Standards - Contingency Operations (Red Book), March 2002.

6) Joint Publication 4-04, *Joint Doctrine for Civil Engineering Support,* September 2002.

WEB PAGES

Army Field Manuals
http://www.globalsecurity.org/military/library/policy/army/fm/index.html

USARMY Corp of Engineers, HQ Environmental Division Homepage - http://hq.environmental.usace.army.mil/

DLA Environmental Products Homepage
http://www.dscr.dla.mil/products/epa/eppcat.htm

MSDS
http://www.msdssearch.net/msdssearch.asp

Online EINECS Information System
http://ecb.jrc.it/classification-labelling/

APPENDIX E

Comment Card

This handbook has been written to assist you. If you feel that some important information is missing or is incorrect, please let us know. We want to know how we can improve the handbook to help you out. Just tear off the attached comment card, include your comments and send it in to us.

Tear Here

Tear Here

You Spill, You Dig II: An Environmental Handbook for Sustained Deployment Operations

Comment Card

To Whom it may Concern:

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Tear Here

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