Lake Champlain
Oil Spill Workshop 2019

Jason Scott
The University of Vermont

Lake Champlain Oil Spill Workshop: **AGENDA**

Wednesday May 1st, 2019 [0830- 1200]

Subject	Presenter	Schedule	Total Time
Arrival/Sign-in		0815-0830	15 Min
Intro/Welcome	Jason Scott	0830 - 0850	20 Min
Spill Notifications	VTDEC; USCG; EPA	0850 - 0905	15 Min
Environmental Health and Safety (OSHA Regs)/PPE	Jason Scott; VTDEC	00905 - 0925	20 Min
Break		0925 - 0935	10 Min
Hazardous Waste Management (From Spills)	VT DEC; EPA	0935 - 0955	20 Min
Hands on Training w/ Boom, Sorbents, skimmer,	NRC; USCG; VTDEC	0955 - 1125	90 Min
Resources/Handouts/ Final Thoughts/Questions	Jason Scott /Mike O'Brien	1125- 1150	25 Min

Why are we here?

- Talk about oil spill response as a community
- Gain knowledge in Federal and State regulations for spills
- Gain a better understanding of spill response procedures and equipment.
- Increase preparedness for oil spills in the Lake Champlain Basin

Lake Champlain Oil Spill Workshop 2019

1-800-424-8802

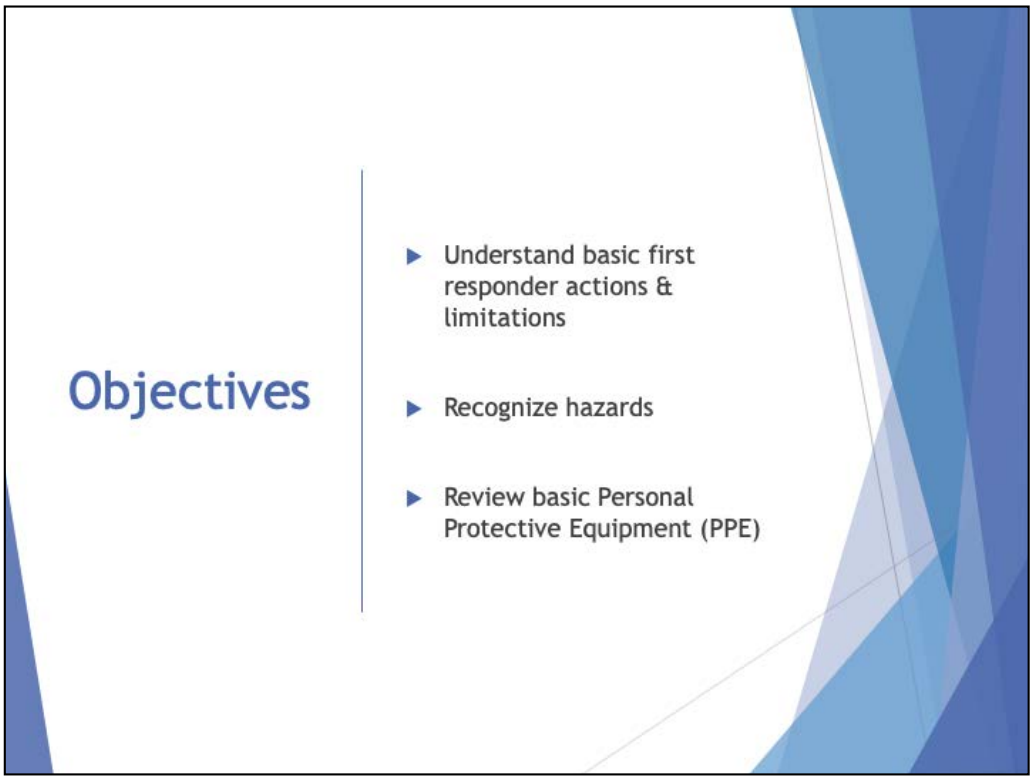
National Response Center

www.nrc.uscg.mil

Notifications

Lake Champlain
Oil Spill Workshop 2019

Health and Safety


Objectives
Understand basic first responder actions & limitations
Recognize hazards
Review basic Personal Protective Equipment (PPE)

Hazardous Waste Operations and Emergency Response (HAZWOPER) 29 CFR 1910.120

Applies to the following:

Hazardous Waste Cleanup

Emergency Response

Levels of Training

- First Responder **Awareness** Level
- First Responder **Operational** Level
- Hazardous Materials **Technician**
- Hazardous Materials **Specialist**
- Hazardous Materials **Incident Commander**

Incidental vs. Emergency Spill

- An incidental release is a release of a hazardous substance which does not pose a significant safety or health hazard to employees in the immediate vicinity or to the employee cleaning it up, nor does it have the potential to become an emergency within a short time frame. Incidental releases are limited in quantity, exposure potential, or toxicity and present minor safety or health hazards to employees in the immediate work area or those assigned to clean them up. An incidental spill may be safely cleaned up by employees who are familiar with the hazards of the chemicals with which they are working.
- Incidental Spills are exempt from the HAZWOPER standard

Incidental Spills

- Response to incidental spill response is not governed under OSHA's Hazardous Waste Operations and Emergency Response (HAZWOPER) Standard. Workers are not required to have a specified level or amount of training to clean up small, non-emergency spills – they just need to be able to recognize the hazards and be able to follow the prescribed plan that the facility has outlined to safely accomplish the task. Incidental spill response can be part of a facility's standard operating procedures, and training can be incorporated into hazard communication or other safety trainings.
- https://www.osha.gov/Publications/osha2254.pdf

SLIDE: This slide shows what the training will cover in the Recognition, Evaluation and Control modules.

NOTES: Briefly review this. The following slides explain each bullet point in more detail.

POINTS:

•Recognition - We'll learn how to recognize a potential hazard [click]

•Evaluation - Once the hazards have been identified, we'll learn how to determine the relative risks [click]

•Control - Steps you can take to eliminate or minimize the hazard. The different types of controls will be discussed later.[click]

Types of Hazards You May Encounter

- Physical

Confined Spaces; Noise; Heat/Exhaust; Pinch Points; Tripping hazards

Hydraulic Lines; Vehicles/Equipment/Aircraft; Heat/Cold Stress

- Chemical

Corrosives; Toxics; Compressed gases; flammables; oxidizers;

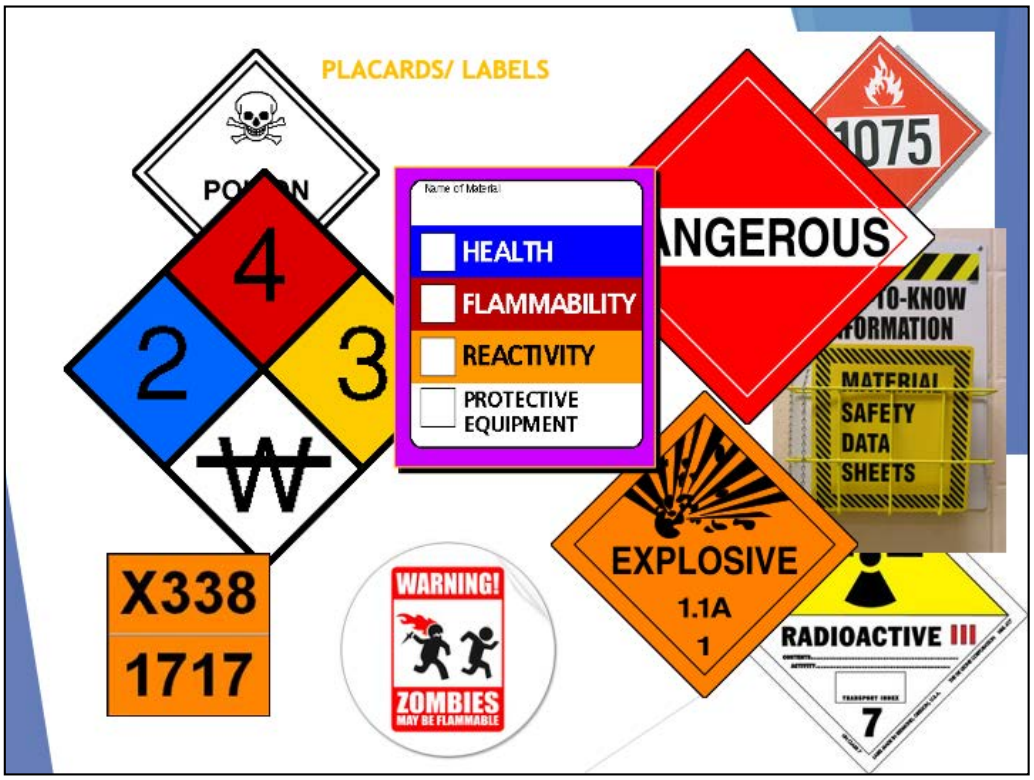
- Biological

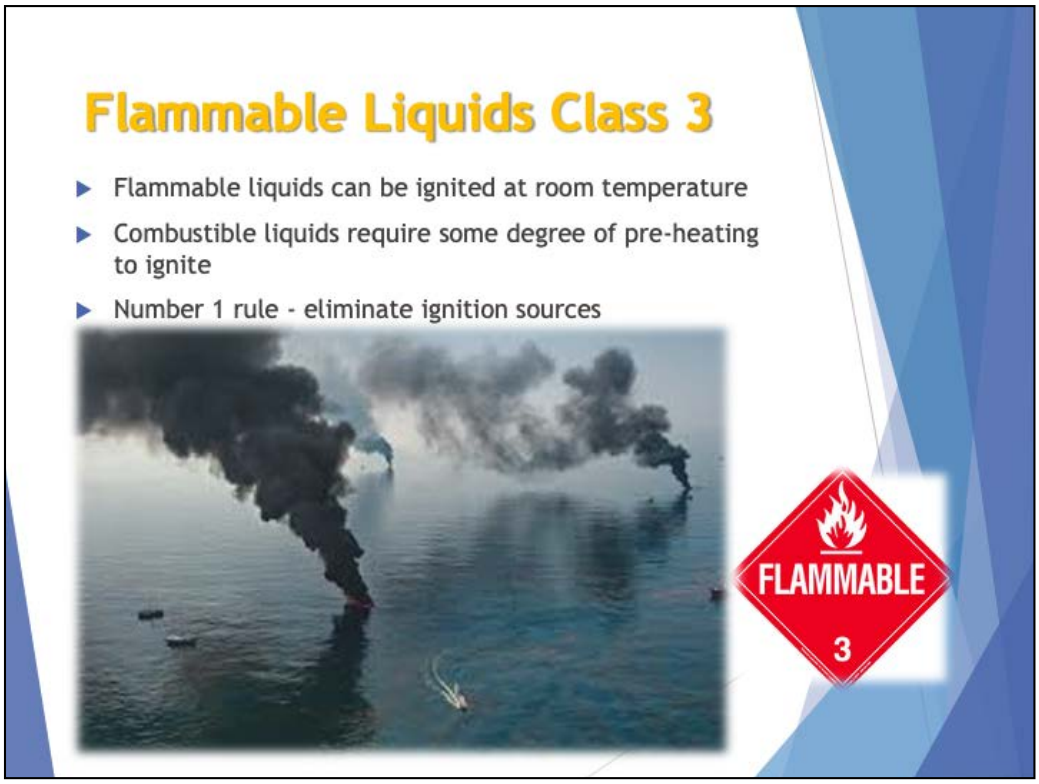
Bio-waste; mammals; birds; viruses; poisonous plants;

Toxic Properties

	Product	Toxic Component	Route of Entry
	gasoline	BTX's	Inhalation/Skin
	crude oil	BTX's/H_2S	Inhalation/Skin
	diesel	BTX's	Inhalation/Skin
	bunker C	Sulfer	Inhalation/Skin
	hydraulic	BTX's	Skin

Containers (portable)


PLACARDS/ LABELS
4
2
3
X338
1717
Name of Material
HEALTH
FLAMMABILITY
REACTIVITY
PROTECTIVE EQUIPMENT
1075
NGEROUS
SAFETY
DATA
SHEETS
EXPLOSIVE
1.1A
1
WARNING!
ZOMBIES
MAY BE FLAMMABLE
RADIOACTIVE III
7



This is the label or placard used to designate flammable liquids. Certain common flammable liquids have their own placards, where the name of the material (such as gasoline and fuel oil) replaces the word "FLAMMABLE". Also, materials that fit the definition of a combustible material, have the word "COMBUSTIBLE" replacing the word "FLAMMABLE".
This placard is required when transporting over 1001 lbs of flammable materials.

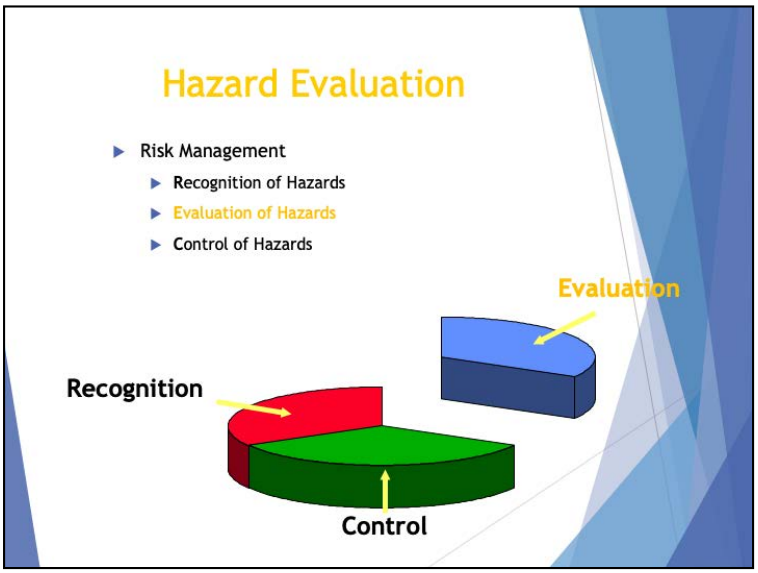
Information below is for reference purposes only----------

In the USA, there is a precise definition of **flammable liquid** as one with a flashpoint below 100 degrees Fahrenheit. Less-flammable liquids (with a flashpoint between 100 degrees and 200 degrees Fahrenheit) are defined as **combustible liquids**. This definition is used by the National Fire Protection Association, The US Department of Transportation, the US Environmental Protection Agency, the US Occupational Safety and Health Administration and others.

Corrosive

- Material which causes destruction to human skin tissue or a liquid that has a severe corrosion rate on steel

This placard/label is used to designate any corrosive liquid.
Placarding is required whenever the quantity exceeds 1001 lbs of a corrosive liquid.



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Slide: This slide begins the discussion of what factors we have to evaluate in the response to an incident involving oil products.

Notes: As each bullet comes up, have the class list what makes up each factor.

Points: The bullet points will appear when you click on the mouse. The previous points will dim.

- In determining the OVERALL level of hazard for a site, these are the issues you'll need to evaluate. [click]
- Product - Probably (but not necessarily) the biggest factor will be the substance you're responding to. If you don't know, it is the biggest. [click]
- Scenario - The situation could have a major role to play in the level of hazard. A laden tank ship fully engulfed in flames is (generally) a more hazardous situation than a drum sitting on a beach (remember, the product is not part of this factor). [click]
- Environment - Temperature, terrain, weather (precipitation), wind, seas, biological activity (snakes, bears, etc.) [click]
- Human - Training, education, fatigue, experience. [click]
- Time - How long will the response take? How long will you need to be in the hot zone? [click]

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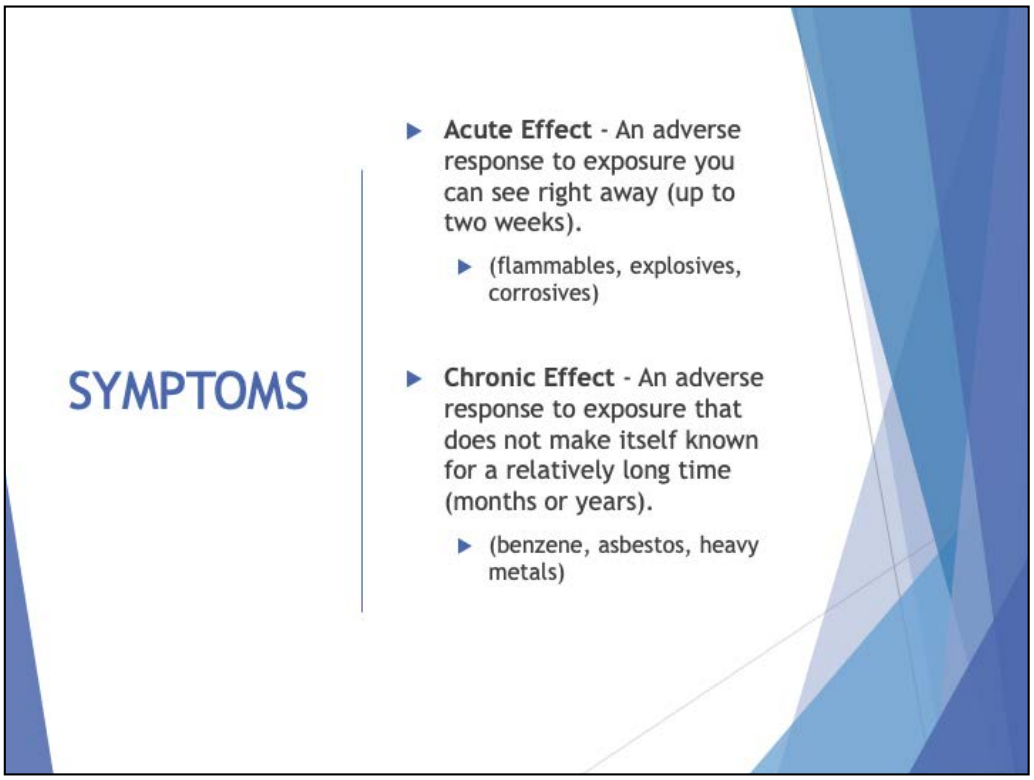
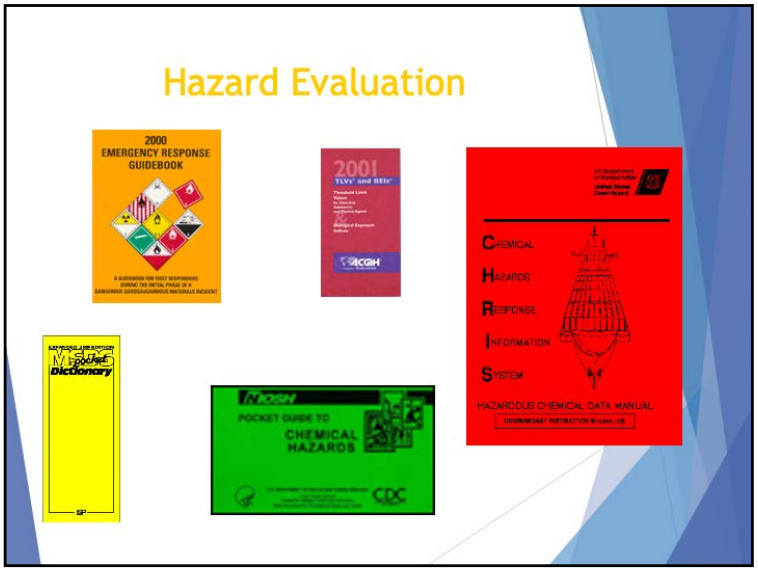

SYMPTOMS
Acute Effect - An adverse response to exposure you can see right away (up to two weeks).
(flammables, explosives, corrosives)
Chronic Effect - An adverse response to exposure that does not make itself known for a relatively long time (months or years).
(benzene, asbestos, heavy metals)

Routes of Entry

- Inhalation
- Ingestion
- Injection
- Absorption



SLIDE: This slide illustrates the types of reference materials commonly available to USCG personnel.

NOTES: Try to get copies of each prior to the training.

Emphasize: First responders will use the ERG most often.

Safety Data Sheets (SDS)

- SDS is a summary of the important health, safety and toxicological information on a chemical or its ingredients.
- The SDS regulation is found in OSHA (29CFR 1910.1200).


Safety Data Sheet

Section 1: Identification

Crude Oil, Sour

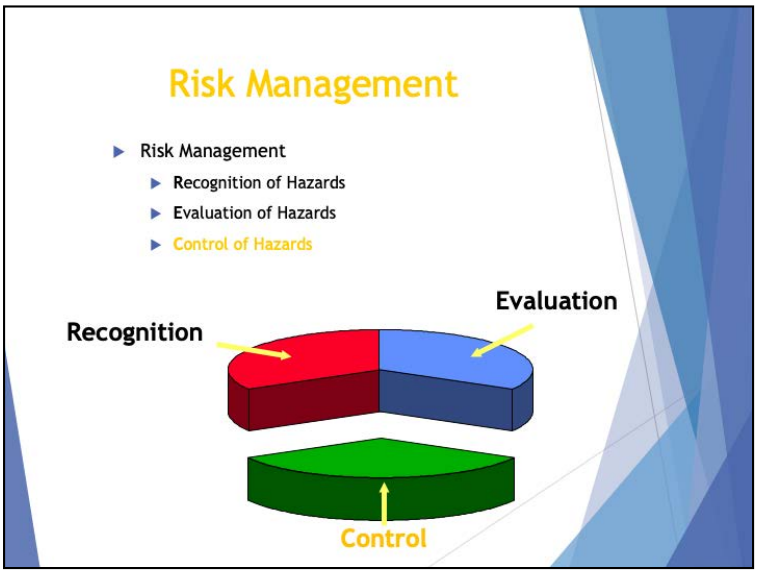
Section 2: Hazards Identification

DANGER

EO-11B

Explain

- how to get MSDS,
- where they are stored and
- who is accountable for maintaining current log book



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Controlling the Hazard

- Implementing protective action distances.
- Take actions to properly isolate the incident.
- Initiating your Emergency Response Plan.

Engineering Controls

Administrative Controls

- Training i.e. HAZWOPER,
- Mock drills and deployments
- Emergency Response plans
- Health and Safety Plans
- Work rest schedules

Slide: This slide introduces the PPR portion of the Control Module.

Notes: PPE is one of the most important methods of preventing exposure at an oil spill or hazmat incident.

Points: There are no points. The slide appears as printed on this page.

Emphasize: If you don't have it (PPE) you can be exposed.

Slide: This slide shows the basic criteria for selecting PPE.

Notes: This is basic criteria that applies to all PPE. Subsequent slides will discuss specific of each Level. There is no need to discuss them now.

Points: Each bullet point will appear as you click the mouse. The previous points will dim. Briefly discuss each as it appears. The type of substance will have the most effect on PPE selection as some will require very specific PPE. Concentrations will determine the need for respiratory protection. The possibility of exposure will determine the Level and routes of exposure will affect overall Level and any specialized PPE needed

Emphasize: This is not a simple decision. Get help.

Review of PPE Response Levels

Level A

Level C

Level B

For most Fuel/ Oil Spills use Level D

Level D PPE


steel-toed rubber boots


hard hat


inner and outer gloves


coveralls


eye protection


PFDs


hearing protection


cartridge respirator

Decontamination for Oil

- Typically use a "dry" DECON
- All outer garments are disposable
- Double bag & store all solid waste

- Chairs
- Tubs
- Heavy plastic bags
- Sorbent

Slide: This slide continues the Decon presentation.

Notes: More specifics about Decon at oil spills. It is quite different than Decon for hazmat incidents as you rarely reuse suits at an oil spill.

Points: Each bullet point and associated sub-point will appear as you click the mouse. The previous points will dim. Briefly discuss each as it appears. "Dry Decon" means you try to wipe off as much as possible with sorbent material before you get all wet. Most of the contamination will be on the clothing, remove that and you remove the bad stuff. In virtually all oil spills you will use disposable CPC. They are cheap, no need to save them. Assume any waste is hazardous waste and treat it accordingly. Someone else will determine if it is non-hazardous.

Emphasize: Oil spills are different. Ordinary hazmat procedures may not apply.


Most Importantly...
Know Your Limits
Understand Your Role
Safety First

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Waste Management

Diesel Spills

Any quantity that produces a sheen

- Report details to U.S. Coast Guard and state response agency.
- Prohibit boats and swimmers from entering contaminated area.
- Deploy spill boom to contain, deflect and/or absorb as necessary, add pillows/pads or use skimming device.
- Dispose of contaminated debris/absorbents safely.

For larger quantities that cannot be contained and removed by trained marina staff, notify pre-designated spill response contractor.

Do not use soaps or chemical dispersants. All staff coming in contact with the spill must have appropriate HAZWOPER training.

Gasoline Spills

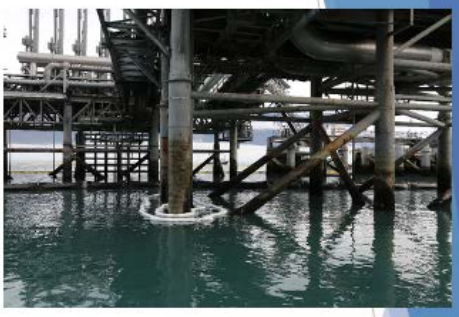
For small quantities that can be readily dispersed/evaporated
- Do not contain
- Shut off electrical power to area
- Guard the area until safe from fumes and fire
- Report spill to US Coast Guard and state response agency

If gasoline has spilled into a boat and poses an explosive threat
- Do not energize bilge pump or engines
- Shut off electrical power to area
- Evacuate area
- Call 911, notify US Coast Guard and state response agency, if imminent risk of pollution or fire
- If possible and safe, push boat away from fuel dock to isolated area.

For larger quantities spilled into the water
- Shut off electrical power to area
- Evacuate all people and keep boat traffic away from area
- Call 911 for assistance.
- Report details to US Coast Guard and state response agency. If possible and safe, deploy boom to keep gasoline from drifting under docks or around other boats.
- Guard the area until area is cleaned and cleared of fumes

Do not use soaps or chemical dispersants. All staff coming in contact with the spill must have appropriate HAZWOPER training.

Containment Boom



Sorbents

	**Boom** • sorbent material, cylindrically-shaped and deployed like a boom • some models have ballasted skirt and flotation core
	**Pads** • sheets of sorbent material available in various configurations, e.g., melt-blown, sonic-bonded, laminated and air-laid
	**Pillows** • sorbent material enclosed in a small sack, which can be easily handled and placed in confined areas
	**Pom-poms** • bunches of oleophilic strips • can be strung together on a rope as a snare boom
	**Rolls** • continuous sheet of sorbent material
	**Sweeps** • long sheets of sorbent material, reinforced with rope and stitching
	**Other** • other forms include socks, barriers, loose fill, and particulate

Marina Response Scenarios

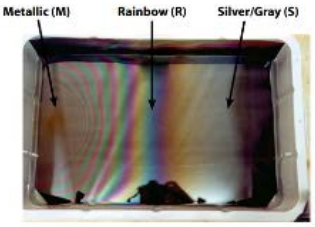
- Things to think about…..

Sheen…..

Sheen types

Silver/Gray (S), Rainbow (R) Sheen, and Metallic (M) Oil Colors

Patches of **silver/gray (S)**, **rainbow (R)**, and **metallic (M)** dull brown sheens.



Source: Alun Lewis & SINTEF (Dec. 2002)

The BONN (BAOAC) Data – Metric & English Units

Note the use of Capital letters for color codes (S, R, M, T, D, and E); this will make it easier creating and interpreting sketches by aerial observers.

See volume estimate cautions on page 13.

Code	Description	Layer-Thickness Interval		Concentration	
		microns (µm)	inches (in.)	m^3 per Km^2	bbl/acre
S	Sheen (silver/gray)	0.04 – 0.30	1.6×10^{-6} – 1.2×10^{-5}	0.04 – 0.30	1×10^{-3} – 7.8×10^{-3}
R	Rainbow	0.30 – 5.0	1.2×10^{-5} – 2.0×10^{-4}	0.30 – 5.0	7.8×10^{-3} – 1.28×10^{-1}
M	Metallic	5.0 – 50	2.0×10^{-4} – 2.0×10^{-3}	5.0 – 50	1.28×10^{-1} – 1.28
T	Transitional Dark (or True) Color	50 – 200	2.0×10^{-3} – 8×10^{-3}	50 – 200	1.28 – 5.1
D	Dark (or True) Color	>200	$> 8 \times 10^{-3}$	>200	> 5.1
E	Emulsified	Thickness range is very similar to dark oil.			

Chart from Bonn Agreement Oil Appearance Code (BAOAC) May 02, 2006, modified by A. Allen.

Sinking

Boom = 3 times the length of the boat

Bilge Pumps...

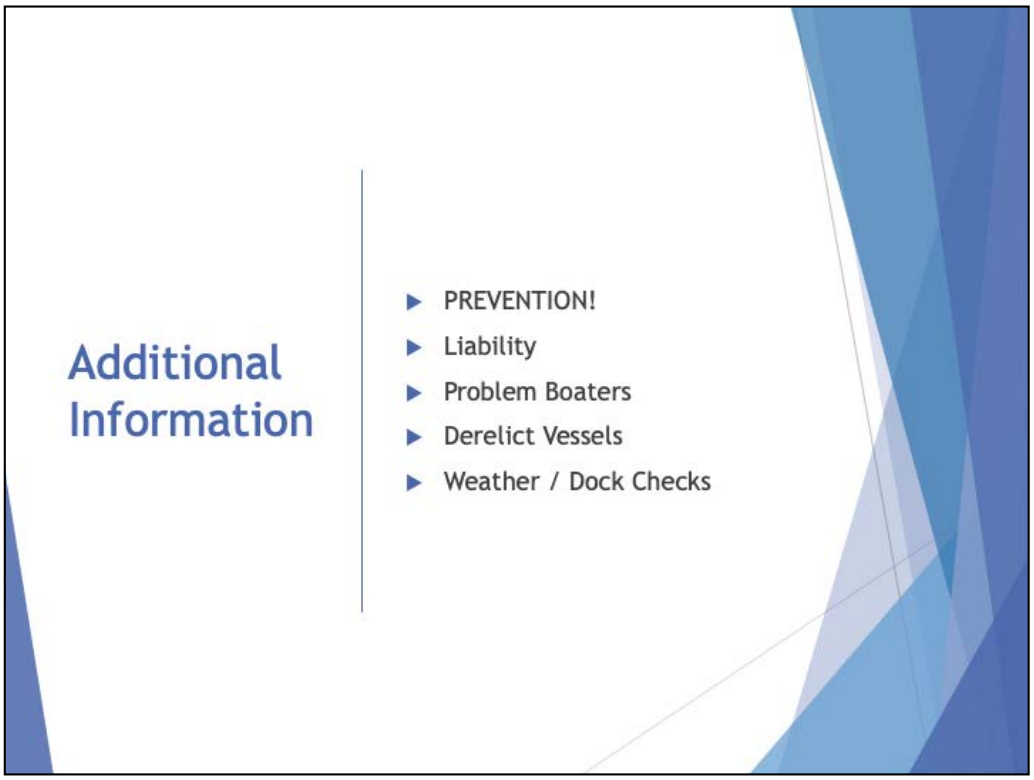
Shoreline Impacts

Fire

Dispersants: Please Don't!!!

Safe Practices

- Approach carefully (Avoid Hero Syndrome)
- Monitor vapors
- Wear PPE
- Don't contain volatile products
- Have/use a Safety Plan
- Communicate Hazards
  - Signage
  - Training
  - MSDSs


Additional Information
PREVENTION!
Liability
Problem Boaters
Derelict Vessels
Weather / Dock Checks

Final Thoughts and Recommendations

- Make A Response Plan
- Engage with local Responders, Fire Departments,
- Train Your Staff (US Boat Course; Hazwoper)
- Inventory Spill Equipment
- Prevention, Prevention, Prevention!!!!!

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