



7.19 GFE and Boardings

ENABLING OBJECTS



- DESCRIBE the hazards found on boarded vessels.
- DESCRIBE the common gases, solvents and fuels.
- DESCRIBE shipboard locations of various explosive or toxic gases or mixtures of gases may be encountered during Boardings.



Boardings

- **Navy**

- Maritime Interdiction Operations (embargo)
- Joint Service Operations (JIATF, counter-narcotics, fisheries, environmental compliance, refugees)

- **Coast Guard**

- Joint Service Operations (embargoes)
- Federal Law Enforcement (counter narcotics, fisheries, marine safety, environmental protection, AMIO)



Boarding Team Manning



- **Navy**

- Boarding Officer/
Assistant Boarding
Officer
- Sweep team-
contains a GFEPO
- Security team
- Typically 8-12 total

- **Coast Guard**

- Boarding Officer
 - Typically 4-8 total
- Any Engineering types?**



General Procedures

- Navy

- Security team will muster crew
- Boarding Officer will meet with the Captain
- Sweep team will conduct comprehensive search of all spaces

- Coast Guard

- 1st ones aboard secure the crew
- Boarding officer meets with the Captain
- Other members of Boarding Team conduct an Initial Safety Inspection (ISI)
- No gas free personnel on team



- **Ship Sinks with Banned Iraqi Oil**
- An overloaded ship carrying 1,700 metric tons of black-market Iraqi oil sank on Sunday killing at least one Iraqi in the North Arabian Gulf after being boarded by a team from a U.S. destroyer enforcing U.N. sanctions. **Two members of the eight-member boarding party from the USS Peterson were missing.**



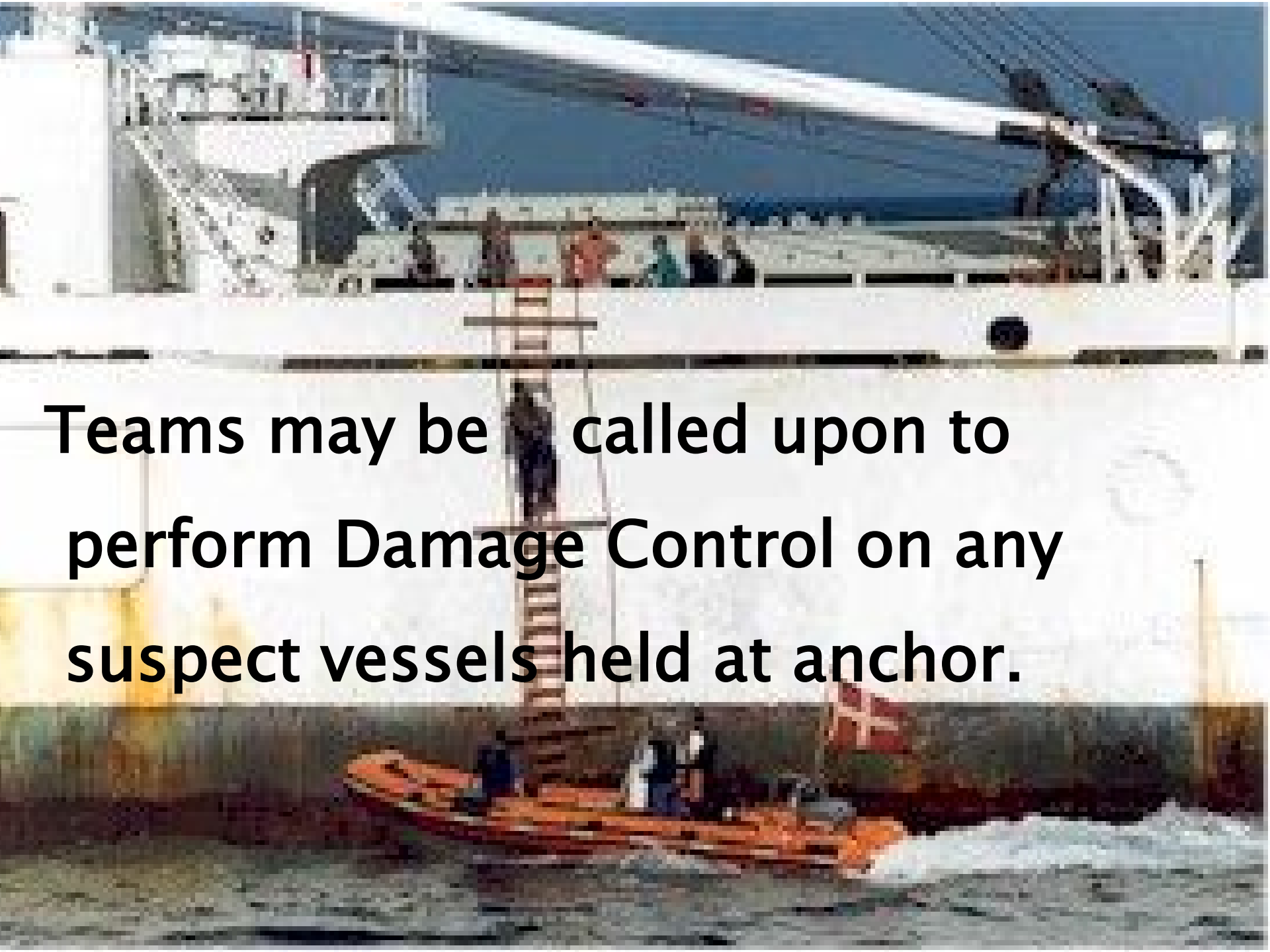
Gas Free Concerns

- Rescue & Assistance Post-Fire Atmospheres
- Smuggling spaces
 - Use of Confined Spaces, False Bottoms
 - Sewage & Fuel Tanks
- Machinery Spaces
 - Excessive Engine & Pump Exhaust
- Containers and Holds
 - Rotting Matter (O_2 deficient, H_2S hazard)
 - Rust (O_2 deficient, H_2 hazard)
 - Food Preservatives/ Cleaning Solvents



Ships need to plan ahead for rigging boarding kits and any necessary ventilation equipment up long distances. Merchant ships may lack firemain to operate RAMFANs.





Teams may be called upon to perform Damage Control on any suspect vessels held at anchor.



KHALDI



























BOARDING CARGO VESSELS



Cargo holds frequently contain organic products which may decompose. For example:

- **Fruits (dates)**
- **Fish**
- **Various Contraband Items**

This may result in:

- **Production of toxic Hydrogen Sulfide**
- **Possibly flammable Methane**
- **Decreasing levels of Oxygen**

BOARDING TANKERS



Tankers carry petroleum products which may:

- **Create explosive atmospheres**
- **Displace Oxygen with highly toxic Hydrocarbons**

Also, products such as Sour Crude Oil decompose and produce toxic Hydrogen Sulfide

BOARDING CONTAINER VESSELS

**Containers may lack
Oxygen and be filled
with any variety of
toxic and/or explosive
Hazardous Materials
(HAZMAT).**







BOARDING SMALL VESSELS



Small vessels, such as Dhows, Inter-Coastal Oilers or Tugs in the Arabian Gulf, may have:

- **Low Oxygen levels in poorly ventilated cargo holds**
- **High Carbon Monoxide levels in exhaust-filled machinery spaces**
- **Flammable Hydrogen in small rusted compartment**
- **Hydrogen Sulfide and Methane from rotting materials, sewage, or stagnant sea water**

Tug and Tow



No Big Deal Right! What could they have.....?

All Looks good from here, right?









How about that Tow?













Have Sweep Team Trained to Identify Potentially Hazardous Spaces



- Use 4-Gas Analyzer!
- Canary Method using Crew Escort
- If Hazardous Spaces are found, Report Conditions to Boarding Officer & Wait for Permission to Enter



Tank Entry Options

The Boarding Officer can find potential IDLH hazards from a ships Bill of Lading. Also, the Boarding Officer may find indication of contraband concealed in IDLH tanks based on discrepancies in a ships liquid load and soundings.



A Boarding Officer inspects documents on vessels in the North Arabian Gulf.

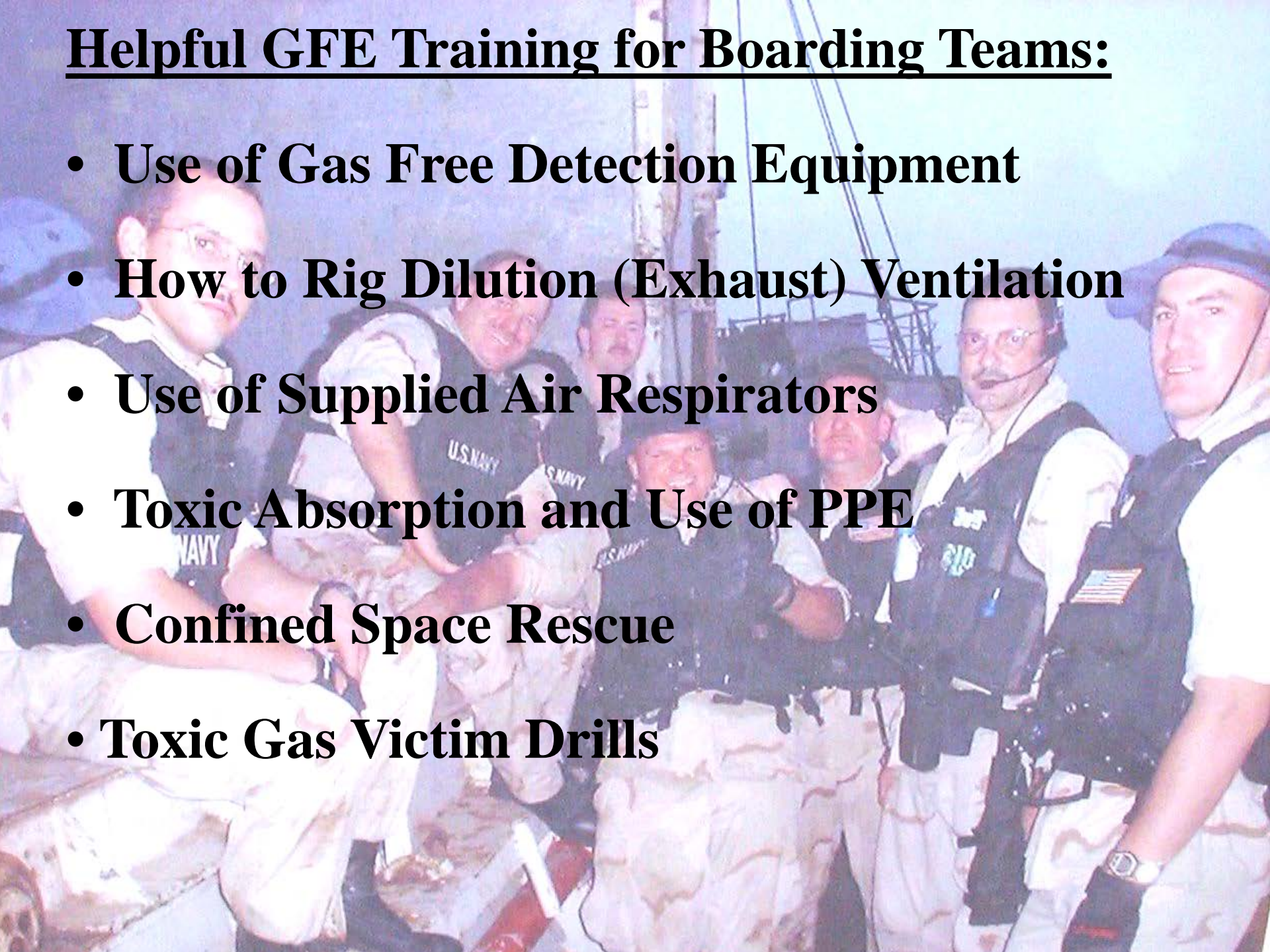
TRAINING, TRAINING, TRAINING

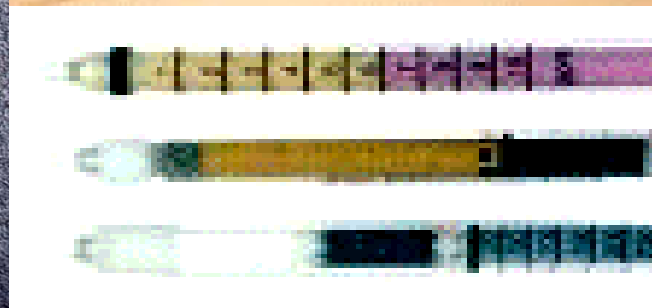
Currently, USN & USCG Boarding Schools do not teach Boarding Teams about Gas Free hazards or procedures. . .
It is up to the Gas Free Engineer.



Helpful GFE Training for Boarding Teams:

- **Use of Gas Free Detection Equipment**
- **How to Rig Dilution (Exhaust) Ventilation**
- **Use of Supplied Air Respirators**
- **Toxic Absorption and Use of PPE**
- **Confined Space Rescue**
- **Toxic Gas Victim Drills**





WHAT COULD WE PROVIDE TO THE MIO TEAM?



Other Concerns GFE Should Address



There is limited space for boarding teams to carry much gear on the initial boarding. A handheld 4-Gas Analyzer, Draeger, and SEED greatly increases safety without taking up space.



The ship can send respiratory equipment, PPE, and appropriate ventilation equipment to the boarding team as conditions necessitate.

QUESTIONS ?



SUMMARY

- We described the hazards found on boarded vessels.
- We described the common gases, solvents and fuels.
- We described shipboard locations of various explosive or toxic gases or mixtures of gases may be encountered during Boardings.



REVIEW QUESTION



What are some of the common gas mixtures and toxicants found aboard these vessels?

LACK OF O₂, EXPLOSIVES,
HYDROGEN, H₂S, METHANE
AND CO



GO AHEAD, SEARCH THIS!!!!!!!!!!!!!!!!!!!!

