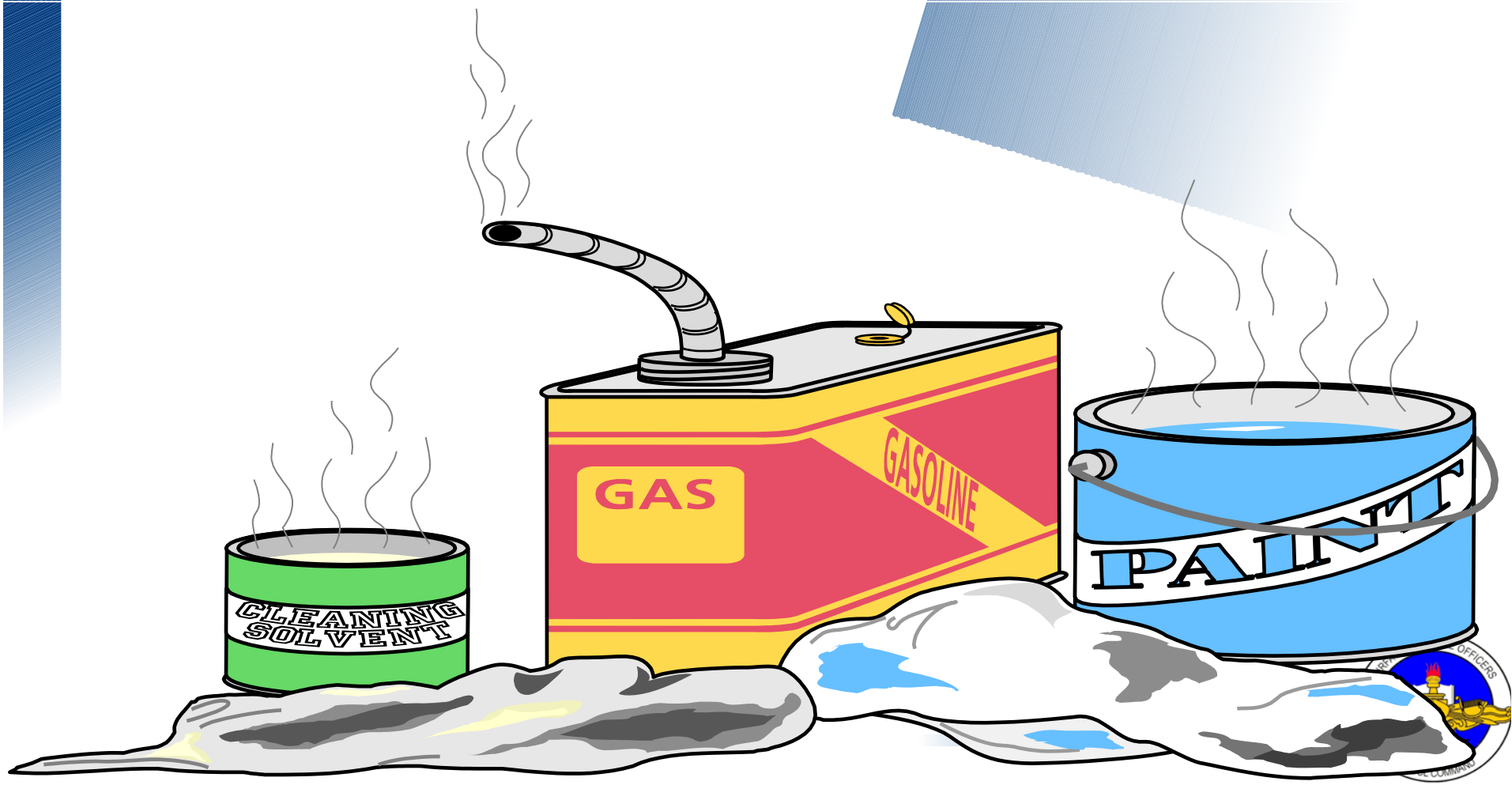
HAZMAT / ENVIRONMENTAL PROTECTION

7.15



ENABLING OBJECTIVES

- **DESCRIBE the HM/HW Program is as it applies to the Division Officer, DCA, and the Gas Free Engineer**

REFERENCES

- ***NAVOSH PROGRAM MANUAL FOR FORCES AFLOAT***
  - OPNAVINST 5100.19D CHAPTER B3
- ***SURFACE SHIP SURVIVABILITY***
  - CHAPTER 7: HAZMAT SAFEGUARDS
  - SPECIAL PRODUCTS FIRE PRECAUTIONS
  - FIRE GASES (DRAEGER TUBE USED)
- ***29 CFR 1960***
  - OSHA HAZARD COMMUNICATION STD.

HAZARDOUS MATERIAL DEFINITION

- Any material that, because of its
  - Quantity
  - Concentration
  - Physical or chemical characteristics
- May pose a substantial hazard to human health or the environment when purposefully released or accidentally spilled

Simply put, it's hazardous if it can cause harm to:

- ***PEOPLE***
- ***THE ENVIRONMENT***

WHY DO WE HAVE HAZMAT?

- HAZMAT is required to attain & maintain operational effectiveness
- Ships require specified types & quantities of HAZMAT
- Care must be taken in handling, using, & storing HAZMAT

Are there materials in your workplace that are hazardous?

- Chances are the answer is ***- YES -***
- HAZMAT does not have to harm you if you learn
  - Which ones are dangerous
  - What their hazards are
  - How to work with them safely

SUBCATEGORIES OF HAZMAT

- Flammable /Combustible Materials
- Toxic Materials
- Corrosive Materials
- Oxidizing Materials
- Aerosol Containers
- Compressed Gases

NOT HAZMAT

- Ammunition
- Weapons
- Explosives
- Propellants
- Pyrotechnics
- Medical Waste
- Radioactive Materials

HAZARDOUS WASTE (HW)

- **Any discarded material (liquid, solid, or gas) which meets definition of HAZMAT**
- ***Navy policy is that ships do not generate hazardous waste***
- **Ships are required to transfer used or excess HAZMAT to a shore facility**

KEY PLAYERS

- ***COMMANDING OFFICER***
- Report all Hazmat mishaps
- Ensure HM spills are handled per Appendix B-3 of 5100.19D
- Appoint a HM coordinator in writing

- ***XO AND DH's***
- Review list of HM stowage locations
  - Annually

HAZMAT COORDINATOR

- Manages HM procedures
- Trains supervisors annually in HM markings, handling, stowage, usage, spill response, and disposal procedures
- Identifies and lists locations of all HM (reviewed annually by XO)
- Ensures HM is inventoried annually
- Retains HMIS & hard copies of MSDS

- ***Safety Officer***
  - Spot checks w/MAA compliance with program
  - Evaluates HM program annually
- ***Medical Dept. Representative***
  - Assists Workcenter Sups in training personnel
  - Maintains file of MSDS's
  - Provides Medical Assistance

SUPPLY OFFICER

- Ensures MSDS is on file for all SHML-approved HM
- Supervise HM collection for disposal
- Ensure all HM containers are properly labeled

DCA RESPONSIBILITIES

- Train & supervise ship's DC teams in combating spills of Hazmat
- Conduct at least <u>one</u> spill response drill annually <u>per DC team</u>
- Provide training to divisions regarding reporting, initial handling and clean-up procedures
- Maintain HM Spill Response Kits
  - **AEL 2-550024007**

DIVISION OFFICER RESPONSIBILITIES

- When HM is moved into other holders, new holders are marked properly
- Proper PPE is available and personnel are trained in its use
- Personnel are properly trained in handling of HM
- MSDS are available for each HM item
- Personnel are trained on MSDS contents and location

DIVISION OFFICER RESPONSIBILITIES

- Personnel are trained in HMC&M Program
  - Upon reporting
  - Annually
    - Use
    - Storage
    - Response to spill
    - Disposal of HM
- Maintain records of stock levels, locations, and usage of HM
- Obtain CO's permission for all Open Purchase items
  - CDR and above serving as SUPPO can approve

Working With Hazmat

ALL HANDS RESPONSIBILITIES

- **Return HM upon completion of use or at end of day**
- **Follow MSDS instructions for proper use**
- **Properly collect and dispose of HM residue**
- **Report any spills to OOD, DIVO, and DCC**
- **Return improperly stowed HM for proper stowage**
- **Report any violation of HM use, storage, handling procedures**

MATERIAL SAFETY DATA SHEET (MSDS)

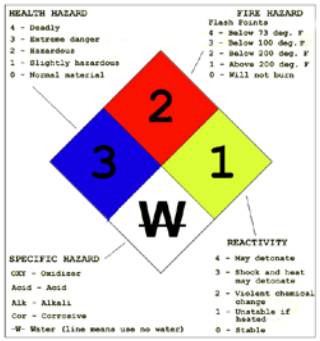
- Technical bulletins containing information about materials
- Must be available for every item of HAZMAT onboard
- Readily available

MSDS CONTENTS

- **GENERAL INFO**
  - Navy supply info
  - Name & nomenclature
  - Date prepared
  - Mfr & MSDS info
- **PHYSICAL/CHEM. CHARACTERISTICS**
  - Appear. / Odor
  - Boiling point & vapor density
- **FIRE AND EXPLOSIVE DATA**
  - Flash point
  - UEL/LEL
  - Extinguishing media
  - Special procedures & hazards

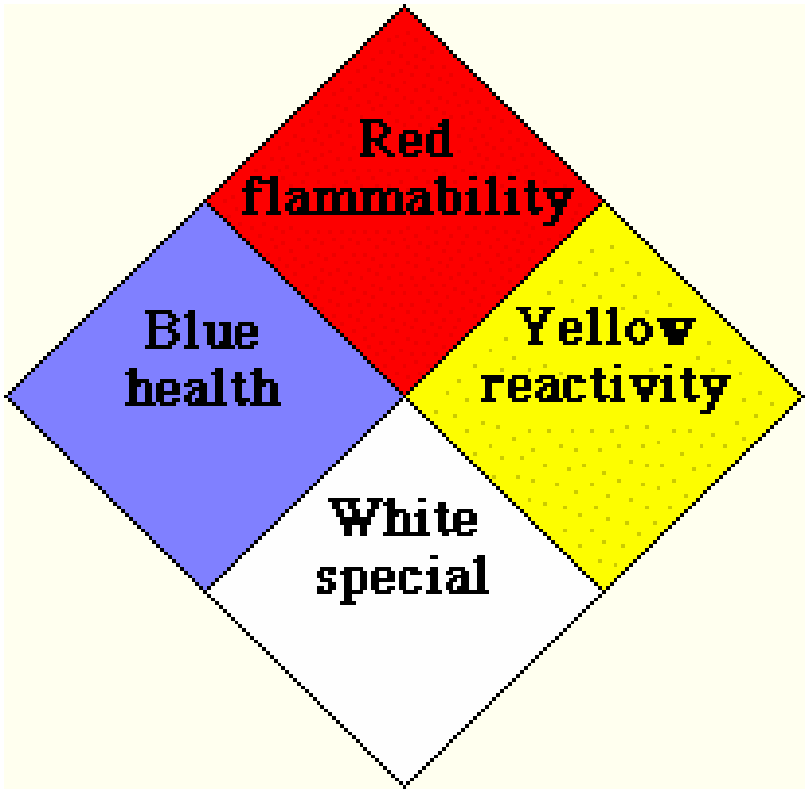
MSDS CONTENTS

- **REACTIVITY DATA**
  - Stability
  - Conditions to avoid
  - Materials to avoid
  - Hazardous decomposition products control measures



- **HEALTH DATA**
  - Acute & chronic
  - Carcinogenity
  - Symptoms for overexposure
  - Aggravated exposure
  - Emergency & first aid procedures

HAZARD COMMUNICATION: The LABEL usually tells you at a glance:



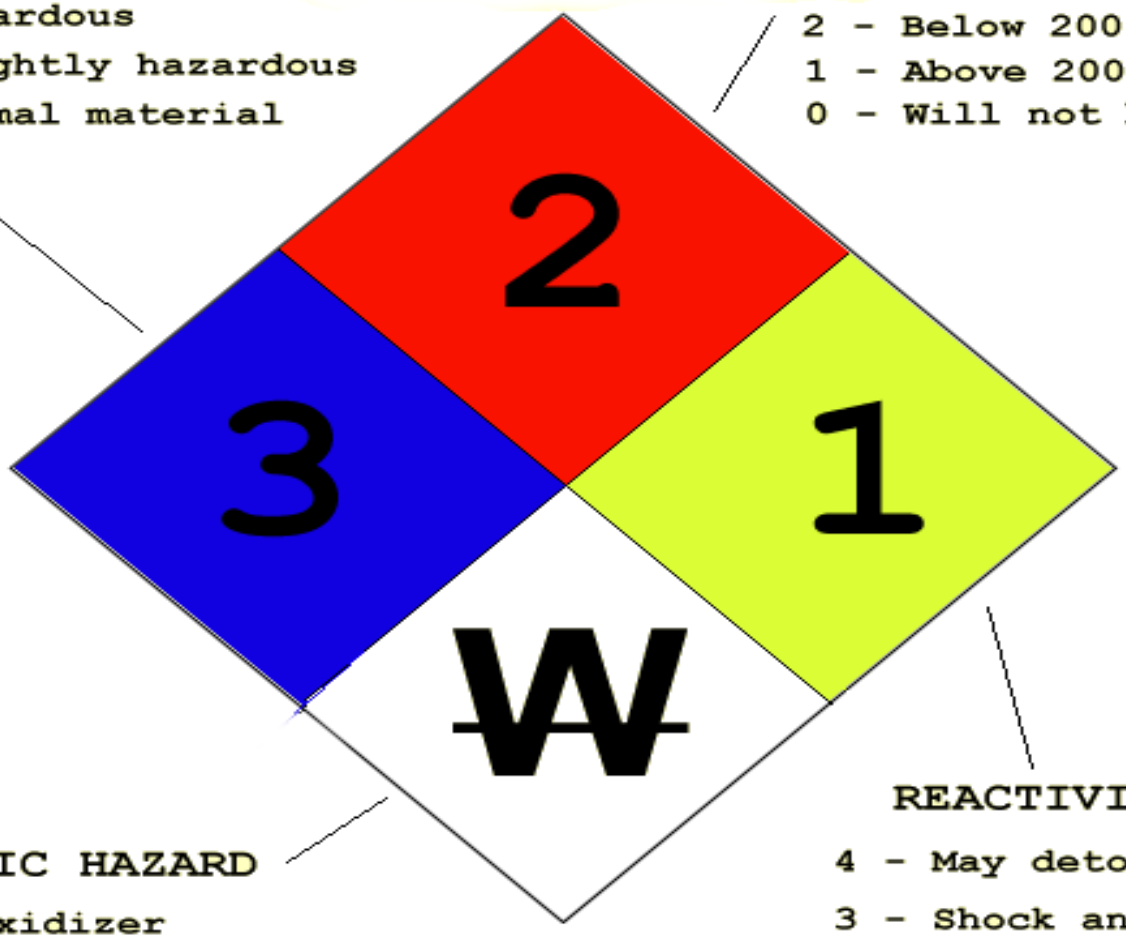
NFPA Label is good to know!

HEALTH HAZARD

4 - Deadly
3 - Extreme danger
2 - Hazardous
1 - Slightly hazardous
0 - Normal material

FIRE HAZARD

Flash Points
4 - Below 73 deg. F
3 - Below 100 deg. F
2 - Below 200 deg. F
1 - Above 200 deg. F
0 - Will not burn



SPECIFIC HAZARD

OXY - Oxidizer
Acid - Acid
Alk - Alkali
Cor - Corrosive
-W- Water (line means use no water)

REACTIVITY

4 - May detonate
3 - Shock and heat may detonate
2 - Violent chemical change
1 - Unstable if heated
0 - Stable

MSDS CONTENTS

- **PRECAUTIONS FOR SAFE HANDLING & USE**
  - Steps for spills
  - Waste disposal method
  - Handling & storage precautions
- **CONTROL MEASURES**
  - Respiratory protection
  - Ventilation
  - Protective gloves
  - Eye protection
  - Extra safety & health data

REQUIREMENTS FOR USE OF MATERIAL SAFETY DATA SHEETS (MSDS)

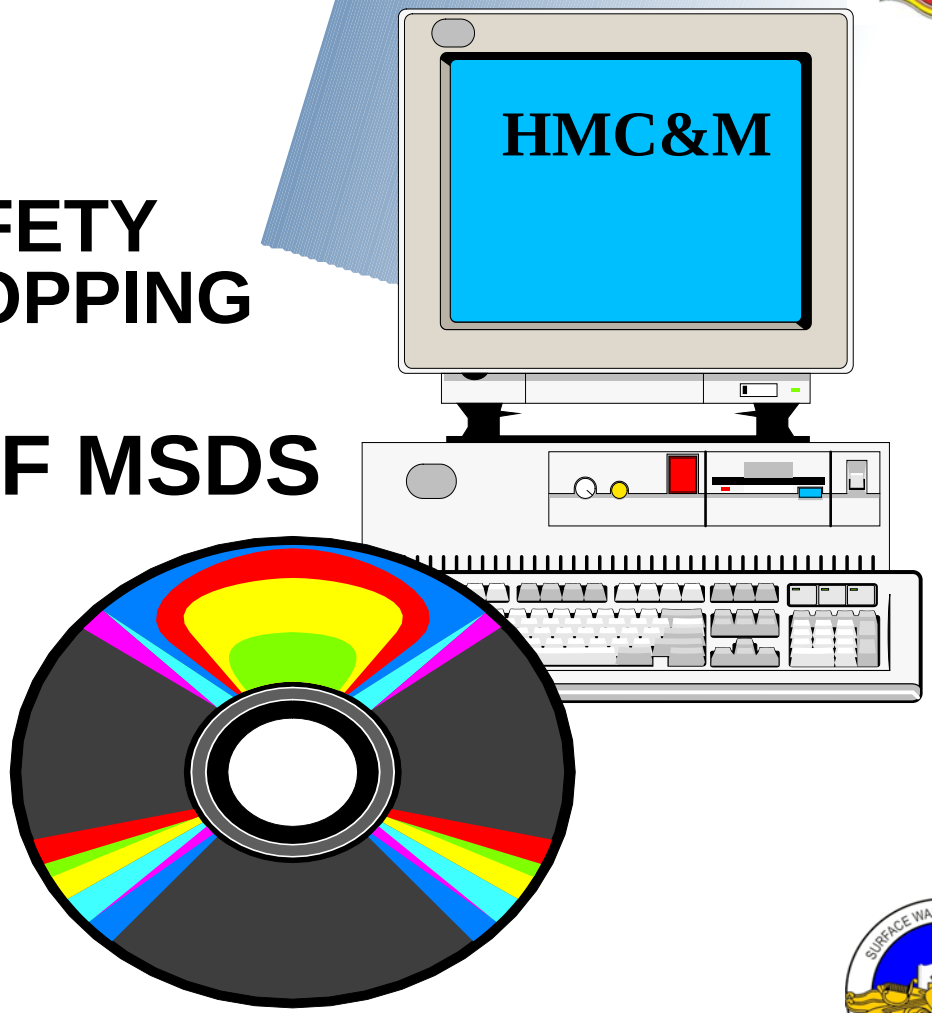
- *FEDERAL LAW* IS THE FOUNDATION
  - 29 CFR 1960
  - OSHA ACT OF 1973
  - OSHA (DEPT. OF LABOR) FORM 174 SETS THE CONTENTS

HOW THE NAVY INTERPRETS THE REQUIREMENTS

- OPNAVINST 5100.19D NAVOSH PROGRAM MANUAL FOR FORCES AFLOAT
  - Requires a MSDS for *all* Hazmat
  - MSDS must be available for use
  - Requires Crew Training in MSDS use

HAZARDOUS MATERIAL CONTROL & MANAGEMENT (HMC&M) CD-ROM

- CONTAINS:
  - HMIS
  - SHML
  - SHIPBOARD SAFETY EQUIPMENT SHOPPING GUIDE
- COMPILATION OF MSDS DATA
- DISTRIBUTED QUARTERLY



HAZARDOUS MATERIAL INFORMATION SYSTEMS (HMIS)

- MSDS data base on CD-ROM
- Updated quarterly by Navy Regional Data Auto. Ctr (NARDAC)
- Flexible retrieval of MSDS info
  - Query by any piece of info
  - Sorting by hazards available
  - Display or print

HAZARDOUS MATERIAL INFORMATION CENTER (HAZMINCEN)

- Manage HAZMAT program onboard
- Use HMIS to distribute material

SHIPS HAZARDOUS MATERIAL LIST (SHML)

- Record of all HAZMAT carried onboard
  - Must be a valid requirement
- Provides ships w/capability to determine HAZMAT authorized
- Helps to maintain accurate inventory

NINE PHASES TO HAZMAT SPILL CLEAN-UP PROCEDURES

OPNAVINST 5100.19 Series APPENDIX B3

- ★Discovery & notification
- ★Initiation of action
- ★Evaluation
- ★Containment & Damage Control
- ★Dispersion of gases/vapors
- ★Cleanup and decon.
- ★Disposal of contaminated materials
- ★Certification for re-entry
- ★Follow-up reports

HAZARDOUS MATERIAL SPILL DRILLS

- Conduct as often as required (B3-6)
- Should be realistic
- DCTT develops Spill Drill scenarios involving Repair Team

HAZARDOUS MATERIAL/ENVIRONMENTAL PROTECTION PROGRAMS AFLOAT PQS NAVEDTRA 43528-A

- OIL/HAZARDOUS MATERIAL (SUBSTANCE) SPILL RESPONSE SPILL LEADER

  WATCHSTATION 304

- ONE PETTY OFFICER IN EACH:
  - INPORT FIRE PARTY
  - REPAIR PARTY
- WITHIN 6 MONTHS OF ASSIGNMENT

Toxic Gas Response

- FREON LEAK
  - AIR CONDITIONING PLANTS
  - REFRIGERATION PLANTS
- SEWAGE LEAK
  - SEWAGE PLANTS

TOXIC GAS DRILLS

•FXP 4: MOB-D-31-SF Toxic Gas Drill

• Required Quarterly

Emergency Party Response

- Casualty Called Away: “Toxic Gas Leak, Toxic Gas Leak. . .”
- DCA orders Toxic Gas Boundaries
- DCA orders Ventilation Isolated (for example, set Circle W)
- Investigators don PPE & Supplied Air Respirators
- Investigators Evacuate Personnel Casualties
- DCA coordinate Stretcher Bearers, First Aid, Corpsman
- Investigators Identify & Isolate Source of Leak
- DCA coordinate Mechanical & Electrical Isolation

Emergency Party Toxic Gas Response

- **DCA order Type of Ventilation:**
  - **Ventilation Installed in Space?**
    - **Flow rate fast enough?**
    - **Operational?**
  - **Exhaust through an Adjacent Machinery Room?**
    - **Watchstanders evacuated?**
    - **Phosgene or other Deadly Toxins?**
  - **Portable Ventilation**
    - **Shortest/best route for elephant trunks?**
    - **Positioned to Avoid Recirculation?**
    - **Ask OOD to maneuver for optimal winds?**

GFE / DCA Conduct Atmospheric Testing

- Specify Test Equipment & type of Draeger Tubes (Appendix E)
- Check results against PEL (Appendix G)
- DCA determine when Atmosphere is Safe for Personnel
- DCA decides when to Restore Normal Ventilation
- DCA Secures from Toxic Gas Casualty

Hazmat Spill Kit: AEL 2-550024007

- **One for every <u>two</u> repair lockers**
- 25 Gallon Drum
- Sorbent Socks and Pillows
- Broom & Dust Pan
- Sealing Tape
- Hazmat Labels
- Disposable Suits
- Gloves, Tongs, Goggles, & Apron
- Scrubbing Brush
- 55 Gal. Plastic Bag
- DOT User's Guide
- Litmus Paper

SUMMARY

- Duties of DCA, Divo, All Hands
- Contents of the MSDS
- Contents of the HAZMAT Spill Kit
- HAZMAT Spill Response
- Toxic Gas Response

QUESTION #1

- What are the responsibilities of the DCA with respect to HAZMAT?
- Answer:
  - To train and supervise Division and DC teams in the cleanup of HAZMAT spills

QUESTION #2

- What types of information are on an MSDS?
- Answer:
  - General Info, Physical/Chem. Characteristics, Fire/Explosion Data, Reactivity Data, Health Hazards, Precautions for Safe Handling and Control Measures

QUESTION #3

- What color indicates the "reactivity" hazard on a NFPA label
- Answer:
  - Yellow