



GAS FREE INSPECTION

7.4

ENABLING OBJECTIVES



- DESCRIBE the pre-inspection procedures and safety precautions when conducting GFE operations
- DESCRIBE the sequence of events and tests to be performed when conducting a GFE inspection
- DESCRIBE the post-inspection procedures when conducting GFE operations



REFERENCES:

(a) NSTM, CH 074, VOL 3, GAS FREE ENGINEERING

(b) NSTM, CH 631, PRESERVATION OF SHIPS IN SERVICE

(c) NTTP 3-20.31, SURFACE SHIP DAMAGE CONTROL

(d) OPNAVINST 5100.19 (series), NAVOSH MANUAL

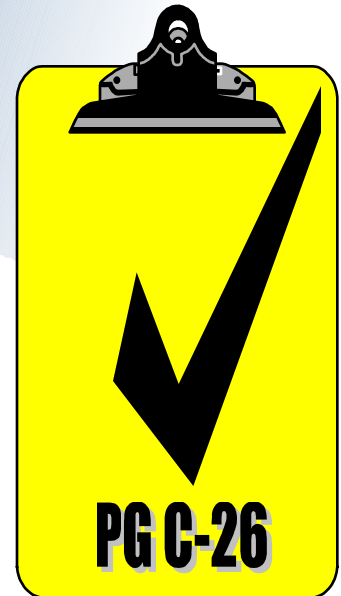


“SAMPLE GAS FREE ENGINEERING PROCEDURAL WORKING GUIDE”



Page C-26 NSTM 074 VOL 3

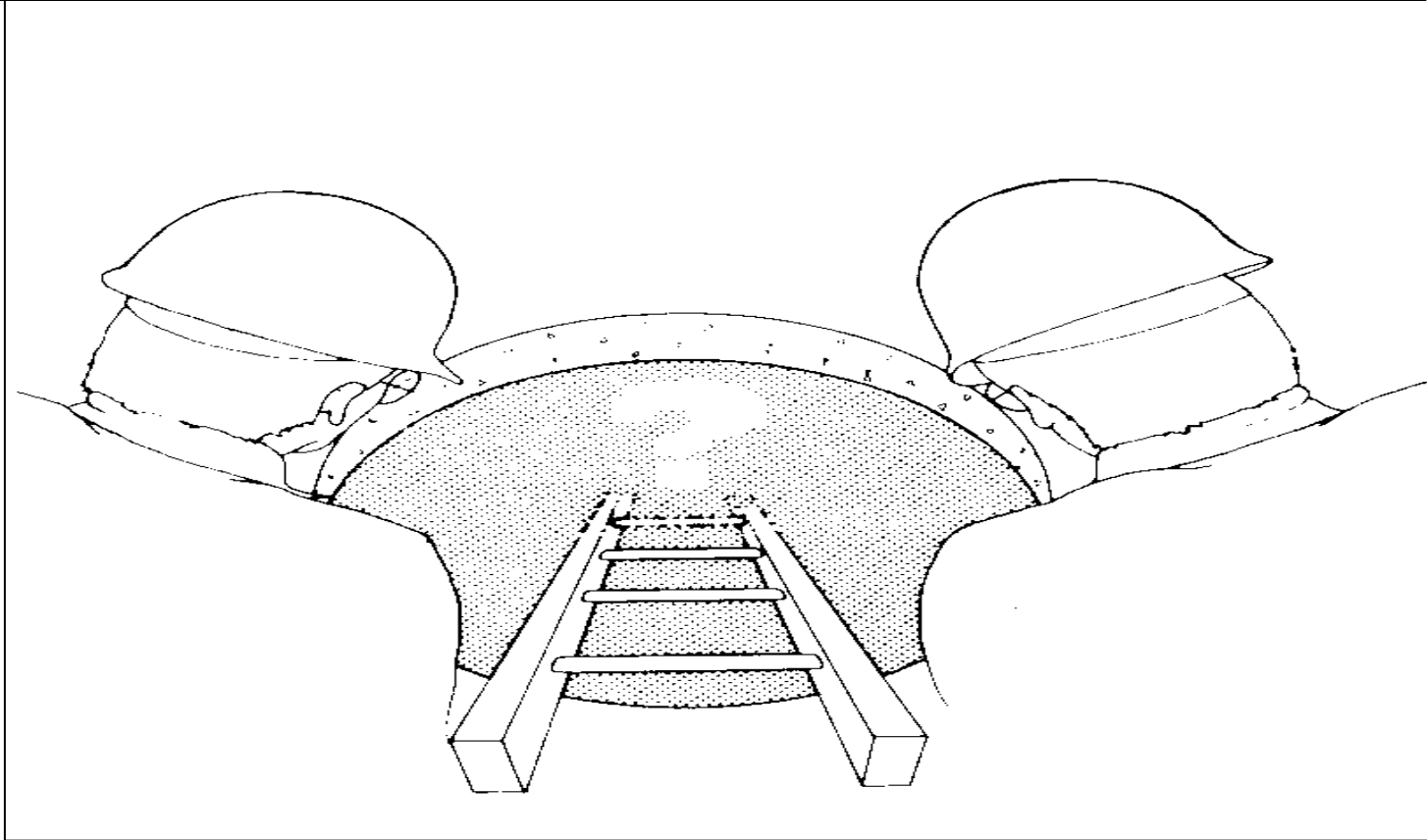
- Use as a guide so you don't forget anything!
- 📄 Pre-Inspection Procedures
- 📄 Closed Compartment Opening & Testing Procedures
- 📄 Post-Inspection Procedures



PRE -INSPECTION PROCEDURES



Review Closed Compartment Opening Request



PRE-INSPECTION PROCEDURES



Review Records for Possible Hazards

Gas Free Log

MSDS

DC Book/Plates

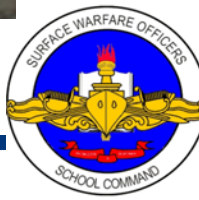
Compartment Sounding Logs

Personnel Responsible for the Space



PRE-INSPECTION PROCEDURES

- Assign personnel
 - Compartment Testing
 - Fire Watches
 - Attendants
- Determine Ventilation Requirements



PRE-INSPECTION PROCEDURES



GFE WILL CONDUCT A SAFETY BRIEF

- Tag Out Space
- Safety Equipment
 - Respiratory Equipment
 - Lifelines - Harness - Lighting
 - Communications
 - Protective Clothing
- Symptoms of exposure of expected hazards
- Secure area (Rope off)
- Operational Risk Management ORM



Operational Risk Management

ORM BRIEF



1. MAKE THIS PART OF YOUR GFE BRIEF.
2. DISCUSS THE ORM 5-STEP PROCESS.
 - A. IDENTIFY HAZARDS
 - B. ASSESS HAZARDS
 - C. MAKE RISK DECISIONS
 - D. IMPLEMENT CONTROLS
 - E. SUPERVISE (WATCH FOR CHANGES)



PRE-INSPECTION PROCEDURES

- Rescue Control Point Designated
 - Rescue Procedures

- Enter into DC Closure Log any fittings required to be opened



DCC? QD? MAIN
MEDICAL?



CLOSED COMPARTMENT OPENING AND TEST PROCEDURES



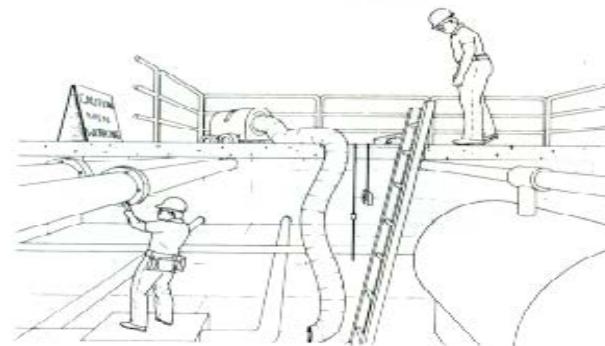
- **SMOKING LAMP OUT!!** Secure hot work in vicinity of space
- Perform required pre-operational checks of test equipment
- Muster personnel and don PPE & equipment



CLOSED COMPARTMENT OPENING AND TEST PROCEDURES

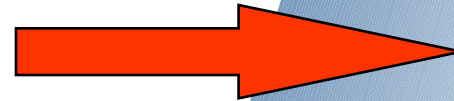


- Ventilation
 - Where to place duct?
 - How long to ventilate?
- Don required respiratory protection equipment
- Remove access cover or break piping system flange
- Inspect for hazards
- Drop Test
 - IDLH Space? If so, do NOT enter.
 - Re-ventilate two complete air changes

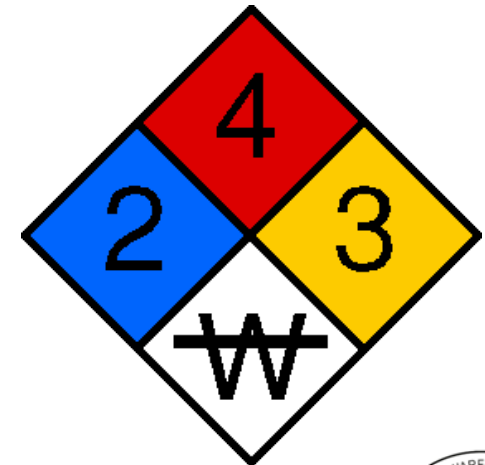
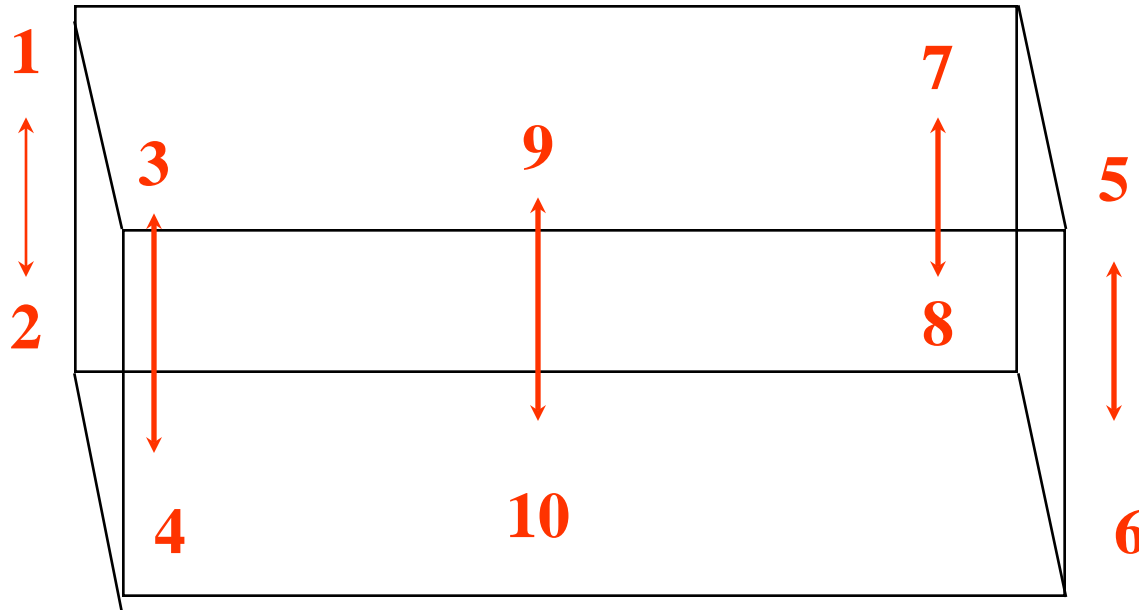


TESTING PROCEDURES

- 10 Point test
- Test top, middle, bottom, and all pockets
- Record results

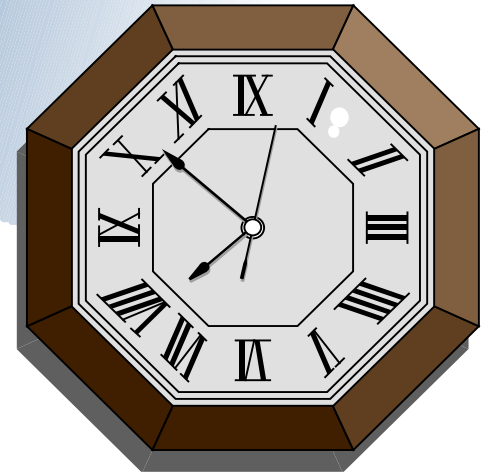


20.8	2%	2PPM H2S	20.8	2%	2PPM H2S
20.8	2%	2PPM H2S	20.8	2%	2PPM H2S
20.8	0%	2PPM H2S	20.8	0%	0PPM H2S
20.8	0%	2PPM H2S	20.2	0%	2PPM CO
20.8	2%	0PPM H2S	22%	0%	2PPM H2S



ISSUE GAS FREE CERTIFICATE

- Hazards Produced by Work?
- Testing Frequency
 - Periodic - Continuous
- Ventilation Requirements
- ☺ *Requirements ???*
- Retesting/Recertification
- Posting Requirements



POST GAS FREE CERTIFICATES



 **Gas Free Files (Original)**

 **OOD**

 **All Accesses to the Space**

 **Division Requesting Services**

 **Damage Control Central**

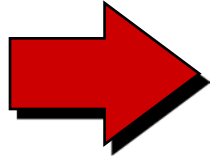


A man in a blue short-sleeved shirt is working at a desk in an office. He is looking down at a laptop. The background shows office shelves and equipment.

**CAN GFPEO'S BE
ASSIGNED TO
RECERTIFY A
SPACE?**

YES

RETESTING



- Entry or Work Delay
- Expiration (8 Hours)
- Hazards Detected
- Ship Movement
- Securing Ventilation
- New Operations or Materials
- Closing Space Or Temporary Shutdown

TEST RESULTS

TESTS CONDUCTED AS REQUIRED	INITIAL TEST	1ST RETEST	2ND RETEST
OXYGEN 19.5% < O ₂ < 22%	20.7%	20.9%	20.8%
COMBUSTIBLE GAS < 10% LEL	0	0	0
TOXIC TYPE: CO < 35 PPM	0	0	0
TOXIC TYPE: H ₂ S < 10 PPM	0	0	0
TOXIC TYPE: N/A			
TOXIC TYPE: N/A			

EXISTING CONDITIONS	INITIAL TEST	1ST RETEST	2ND RETEST
NOT SAFE FOR PERSONNEL/ NOT SAFE FOR HOT WORK			
NOT SAFE FOR PERSONNEL WITHOUT PROTECTION/ NOT SAFE FOR HOT WORK			
SAFE FOR PERSONNEL/ NOT SAFE FOR HOT WORK	MLA	RKL	MAB
SAFE FOR PERSONNEL/ SAFE FOR HOT WORK			
NOT SAFE FOR PERSONNEL INSIDE/SAFE FOR HOT WORK OUTSIDE			

NOTE: THIS INSPECTION INDICATES THE CONDITIONS WHICH EXISTED AT THE TIME TESTS WERE CONDUCTED.

GFE PERSONNEL SIGNATURE M L Anderson LTJG
 CO SIGNATURE, if required N/A

RECERTIFICATION

1ST RETEST/UPDATE

TIME: 1600 DATE: 12 MAY 98 EXPIRES: 2400

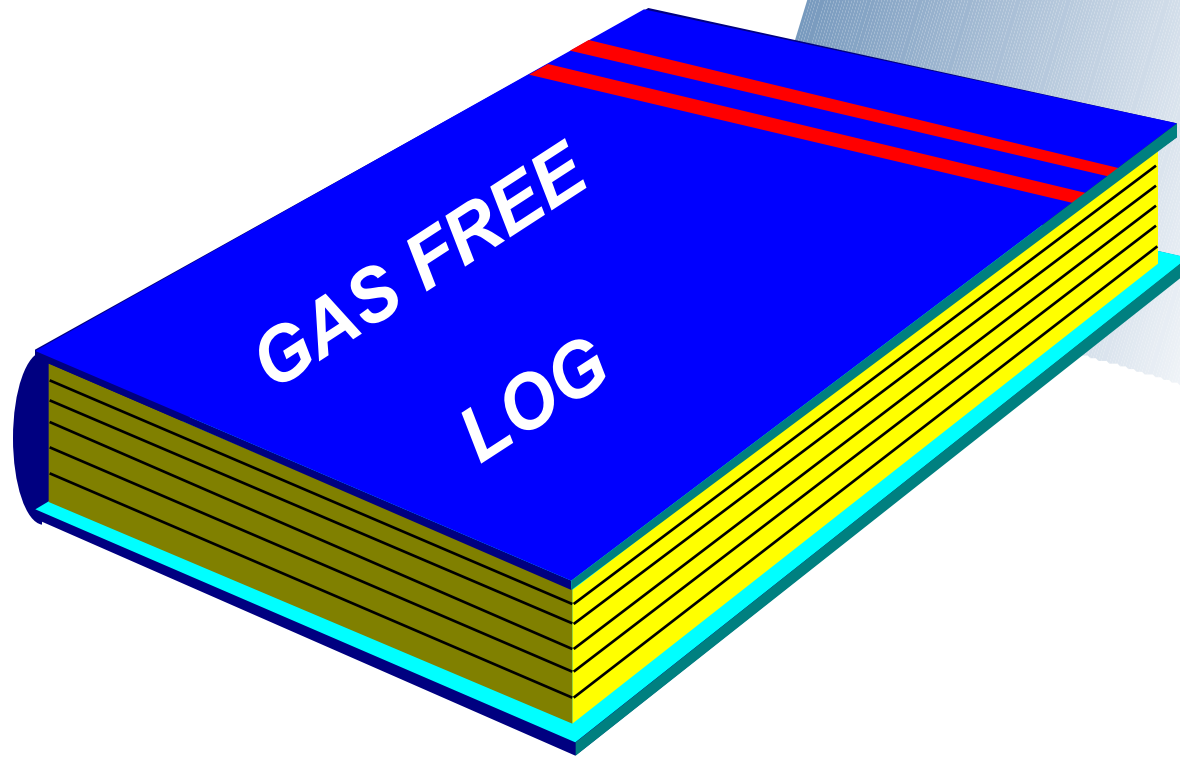
GFE PERSONNEL SIGNATURE R K LaCount DCC (SW)

2ND RETEST/UPDATE

TIME: 0000 DATE: 13 MAY 98 EXPIRES: 0800

GFE PERSONNEL SIGNATURE MA Bowen HT1 (SW)

LOG & FILE IN YOUR GAS FREE LOG



- *Must retain for at least 1 year*



POST INSPECTION PROCEDURES



- ☆ Fire Watch
remain for 30 minutes
(minimum) or until area is cool to touch / sign chit
- 🕒 Conduct final inspection with requesting activity

- 🕒 Inventory
 - Tool Check
 - Trash, Rags, People ...?
- 🕒 Secure access to space
- 🕒 Restow gear



REMOVE ALL GAS FREE CERTIFICATES



 **Gas Free Files**

 **OOD**

 **All Accesses to the Space**

 **Division Requesting Services**

 **Damage Control Central**





ANY
QUESTIONS?



SUMMARY

- We described the *pre-inspection* procedures and safety precautions when conducting GFE operations
- We described the *sequence of events* and tests to be performed when conducting a GFE inspection
- We described the *post-inspection* procedures when conducting GFE operations



REVIEW QUESTION #1



- Define an IDLH space.
- Answer
- Flammable vapors of 10% or > of LEL
- Oxygen < 19.5% or > 22%
- Presence of toxicants above NIOSH IDLH limits
- Tanks



REVIEW QUESTION #2



- What are the posting requirements for gas free certificates?
 1. GF LOG - Retain for at least 1 year
 2. OOD
 3. ALL ACCESSES TO THE SPACE
 4. DIVISION REQUESTING SERVICE



THE END

