

## CHAPTER 12

# MINESWEEPING SAFETY

### LEARNING OBJECTIVES

Upon completing this chapter, you should be able do to the following:

1. Recall general minesweeping safety precautions.
2. Explain the need for minesweeping communications.
3. Explain the safe handling of explosive cutters.
4. Recall the safety precautions for moored minesweeping, influence minesweeping, and cold weather minesweeping.
5. Describe man-overboard procedures during minesweeping operations.

### INTRODUCTION

Mine countermeasures (MCM) demand the use of a wide variety of specialized equipment to counter a wide variety of mines. Much of this equipment is heavy and cumbersome and, therefore, dangerous to use. As a Mineman, you must know and understand the safety precautions associated with the equipment to prevent injury to yourself or others.

This chapter provides safety information that all MCM minesweeper personnel should know concerning minesweeping operations. It includes specific and general safety precautions, as well as safety precautions pertaining to minesweeping communications, moored minesweeping, influence minesweeping, the explosive cutter, cold weather, and man-overboard procedures.

### SAFETY PRECAUTIONS

Before a minesweeping operation begins, all personnel concerned should be briefed on the operation and given a thorough safety review. Additionally, designated personnel must ensure that the ship's degaussing system is working properly both before and throughout the minesweeping operation.

The following paragraphs divide the numerous safety precautions into specific precautions, general precautions, and other precautions:

### SPECIFIC PRECAUTIONS

Specific safety precautions pertain to the following individuals.

- A responsible safety observer must be stationed on the fantail during all streaming and recovery operations.
- A Hospital Corpsman ready to render first aid must be stationed on the 01 level during all streaming and recovery operations.
- The petty officer in charge of the minesweeping operation must be in a location that allows him to communicate directly with all winch and crane operators during all minesweeping operations.
- Personnel assigned to the sweep detail must wear construction-type safety helmets with quick-acting breakaway chin straps fastened and worn under the chin. Phone talkers must wear standard phone talker helmets. Safety helmets must be color-coded as shown in table 12-1.

**Table 12-1.—Color-coded Helmets**

<b>Helmet Color</b>	<b>Personnel</b>
White	Officers, chief petty officers, and supervisors
Yellow	Rig captains
Green	Signalmen and phone talkers
Brown	Winch operators
Red	Line-throwing Gunner's Mates (or bolo heavers)
Blue	Deck riggers and line handlers
White with red cross	Hospital Corpsmen
Gray	All others (electricians, etc.)

- Line-throwing Gunner's Mates must wear red jerseys or vests. Signalmen must wear green jerseys or vests. Jerseys should be worn under life jackets; vests should be worn over life jackets.
- Phone talkers on the intership phone may not fasten their neck straps.
- Personnel working on the fantail while the gear is moving must wear orange fiberglass or kapok life jackets.
- Personnel assigned to the sweep detail working on the fantail must wear government-furnished safety shoes.
- Designated personnel must ensure that the semi-rigid hull boat (SRHB) is rigged and ready for man-overboard procedures.

**GENERAL SAFETY PRECAUTIONS**

The following general safety precautions pertain to most of the personnel involved in the minesweeping operation. These individuals must

- avoid wearing loose clothing that may catch in the gear. Long-sleeve shirts must be buttoned and pants must be tucked into socks.
- remove all jewelry, wrist watches, and keys. Authorized personnel may carry an appropriate knife and a small marlinespike for routine work and for use in an emergency.

- never stand on, step over, or straddle a line or wire that is, or is subject to be, under tension.
- never permit a wire or a line to run through anyone's hands; however, personnel handling message lines or inhaul lines hand-over-hand may wear gloves.
- when required to work over, through, or outboard of lifelines, wear the standard approved safety harness with an attached working line fixed to a solid object. In addition, a second line must be attached to the safety harness and tended by another person at all times.
- keep all gear not in actual use stowed and well-secured in the proper place to avoid a missile hazard and magnetic compromise.
- close all fantail hatches to ensure that maximum watertight integrity is maintained.
- know the capabilities and limitations of all equipment.
- be instructed in man-overboard procedures.
- be instructed in the procedures and hazards of emergency breakaway.
- observe all the precautions associated with good seamanship.

**OTHER SAFETY PRECAUTIONS**

The following safety precautions pertain to individuals not directly involved in the minesweeping operation:

- All nonessential personnel must remain clear of the fantail. After gear is streamed and stopped off, all other personnel should clear the fantail.
- Unauthorized personnel must stay inboard of all gear that is being prepared or handled for streaming or recovery.
- Unauthorized personnel must keep out of the bights of lines and wires.

For safety and efficiency, positive communications must be maintained between the bridge and the fantail at all times during minesweeping operations. When the minesweeping detail is set, the phone circuit should be manned by a talker who is

extremely knowledgeable in minesweeping terminology and phone procedures. At all times, the bridge must be kept informed of the situation on the fantail.

## **MOORED MINESWEEPING SAFETY PRECAUTIONS**

The following safety precautions apply to moored minesweeping operations, in addition to the general minesweeping safety precautions:

- A properly briefed lookout should be stationed on the bow with a charged fire hose to spot floating or shallow-moored mines. If the lookout spots a mine, he or she should immediately report the sighting and state the mine's relative bearing and approximate distance from the ship. The lookout should then proceed as follows:
  - If the mine is floating, use the fire hose to direct a water stream into the water next to the mine in a manner to force the mine away from the ship. The water stream should never be aimed directly at the mine in an attempt to wash it away. Doing so might cause the mine to explode.
  - If the mine is shallow-moored, have the ship undertake evasive maneuvering.
- Personnel should never be permitted to stand or work under a suspended load, or to stand between a suspended swinging load and the taffrail or any solid object.
- All gear should be kept working (under normal tension) while it is streaming. Normal tension is approximately 500 pounds. Slackened gear can become dangerous when tension is reapplied. Way should never be allowed to come off the gear, particularly in shallow water. The most likely time of losing tension on gear or of the gear becoming dead in the water is during turns. The following rules concerning floats are the best safeguards:
  - Keep the float abaft the beam.
  - Prevent the float from crossing the ship's wake.
- Cutters, otters, or depressors should never be brought close aboard without being examined for mines fouled in the gear.

- Personnel should never be permitted to lean over, reach over, or handle sweep or depressor wires while the wires are under tension or are subject to tension.
- Leather palm gloves are permitted in inclement weather and at the discretion of the supervisor.

## **EXPLOSIVE CUTTER SAFETY PRECAUTIONS**

The following safety precautions apply to explosive cutter operations, in addition to the general minesweeping safety precautions:

- Always treat cutters as a loaded gun and point them in a safe direction.
- Face the anvil outboard when cutters are stowed on the deck in preparation for use, with safety pins in place.
- Disarm cutters when they are not needed.
- Always fit a safety pin in a cocked, armed cutter and ensure that the pin cannot fall out. Do not remove the safety pin until the cutter is positioned on the sweep wire. On recovery, replace the safety pin before removing the cutter or any debris from the wire. Ensure that the safety pin is installed in the Mk 15 cutter before removing the cutter from the sweep wire.
- Use an arresting disc in the Mk 15 cutter in all above-water operations to absorb any excess energy of the cutting punch. In underwater operations, the arresting disc must not be used; the water absorbs the excess energy. In an underwater operation, an area within a 25-foot radius of the activity must be clear of personnel.
- If a cutter shows evidence of having fired and the cutting punch is still intact while the cutter is still on the sweep wire, immediately cock the firing plunger, remove the breech block, extract the cartridge carefully, and jettison the cartridge immediately.
- Keep hands and body clear of the anvil.
- Ensure that the correct explosive cartridge is used.
- Handle the stock cartridge according to appropriate safety precautions.

- When the cutter is released after placement on the sweep wire, veer the sweep wire as soon as practical and continue placing the needed cutters. Expedite the recovery until the cutters are close aboard and the safety pins can be installed.
- Do not modify or alter a cutter in any way. Doing so may result in casualties to personnel and damage to the cutter.
- Ensure that the firing (trip) lanyards do not become entangled and that they are long enough to reach the monitoring station on the 01 level to prevent accidental firing of the Mk 15 cutter.
- Use safety lanyards (tag lines) on all cutters when they are being placed on the sweep wires and remove them after the cutters are attached.
- All personnel should be kept clear of the fantail and acoustic or magnetic power cables when the gear is being pulsed.
- All power cables should be inspected upon their recovery following each normal streaming and after a known or suspected grounding or collision. All defects should be corrected before the cables are reused.
- All grips on the cables should be wrapped with two or more layers of heavy canvas secured with marlin when the cables are stowed on the reel. All shackles should be removed from the bridle, and the preventor pendant shackles should be positioned as flat as possible against the cables.

## **INFLUENCE MINESWEEPING SAFETY PRECAUTIONS**

The following safety precautions apply to influence minesweeping operations, in addition to the general minesweeping safety precautions:

- All personnel must obtain permission from the commanding officer or the officer of the deck before entering the drum area.
- There should be no loose gear in the drum area.
- All personnel should stay clear of the drum when it is in motion.
- The operator should not turn the drum until he or she has ascertained that (1) all personnel are clear, and (2) all running parts of the drum are clear.
- The acoustic deck receptacle should not be opened unless:
  - Someone capable of rendering first aid for electric shock is present.
  - A electrician qualified to service the deck receptacle and connect or disconnect a cable is available.
  - No power is being supplied to the deck receptacle from the manual or automatic control panels.
- Radical speed changes should be avoided if the presence of acoustic mines is suspected.

## **COLD WEATHER MINESWEEPING PRECAUTIONS**

The following additional precautions apply to cold weather minesweeping operations:

### **Magnetic Cable**

Avoid excessive handling of the magnetic cable. Cold weather tends to stiffen the cable, and care must be taken to prevent the insulation from cracking or splitting. The temperature of the cable should be at least 5°F before it is streamed. Use portable electric heaters to warm the cable. During recovery, apply heat to prevent icing and to assist drying. Carefully remove any ice that forms during recovery, and dry the cable as much as possible as it is reeled in to prevent it from sticking together on the reel.

### **Deck Machinery**

Cover deck machinery with canvas covers to prevent the accumulation of ice and snow. Operate the machinery periodically. Before using the machinery, inspect it for blocks of ice that may jam moving parts. Where practical, hand turn or jack the equipment and comply with cold weather lubrication charts, after ensuring that the lubricants are water-free.

### **Stern Roller Chocks**

Clear the stern roller chocks, the "H" frame, and the auto rewind to ensure that they turn freely before you begin streaming and recovery operations.

### **Acoustic Devices**

Apply heat to the acoustic devices internally before they are operated at temperatures below 20°F. Two

electrically energized 500-watt strip heaters placed in the hammer boxes for at least 20 minutes before the devices are operated will prevent freezing.

## **MAN-OVERBOARD PROCEDURES**

Man-overboard instructions should be included in the MCM commander's operational order (OPORD). In addition, the ship must have a fully-equipped semi-rigid hull boat (SRHB) rigged ready for lowering during all minesweeping operations.

The following procedures apply if a person falls overboard during minesweeping operations:

- The ship losing the individual and all other minecraft within 4,000 yards must de-energize all influence gear to reduce the possibility of a mine explosion.
- The victim should be instructed to swim toward the sweep gear, which provides, in effect, a ready-made life raft. The victim should be warned, however, to approach the gear with caution.

The ship losing the individual should take the following measures immediately:

1. Drop a life buoy.
2. Sound six short blasts on the ship's whistle.
3. Report as rapidly as possible to the officer in charge and to the ships in formation.
4. By day, hoist flag OSCAR where it can be seen best.
5. By night, display two pulsating red lights arranged vertically, and fire one white flare.

The short length of the ship and its great inertia against a turn while it is performing sweeping operations render both rudder and engine maneuvering useless for recovery of personnel and dangerous for the ship. Such actions should not normally be considered. A service/utility craft, mine destruction/recovery ship, or a minesweeper without gear streamed (if available) should proceed immediately to the victim's assistance. If none of these ships is available, the best-placed minesweeper should be directed to make the rescue and to take the necessary sweep-handling action to render the ship manageable enough to lower a boat in the vicinity of the victim.

