



SAFETY MANAGEMENT MANUAL

7.9.3 OVERBOARDING EQUIPMENT

Originator:	Approved By:
Chris Grech/A. McKee	Mike Kelly

1. Purpose

The purpose of this procedure is to set forth standards to ensure safe use of overboarding equipment on MBARI ISM operated vessels and to define responsibilities to ensure that there are no injuries or loss of equipment during overboarding operations on MBARI ISM vessels.

2. Scope

This procedure covers the design, installation, and maintenance and inspection of overboarding equipment on MBARI ISM regulated vessels based on 46CFR189.

3. Definitions

Overboarding is defined as the use of the overboarding equipment, sometimes referred to as “working over the side”.

Overboarding equipment is defined as all mechanical gear involved in removing equipment from a location on deck and lowering into the water. There are three general categories of this equipment:

- A. Permanent ship’s equipment - is defined as machinery such as crane, winches, capstans, blocks and rigging regularly associated with the ship and maintained by the ship’s force.
- B. MBARI scientific equipment - is defined as machinery such as winches, cranes and blocks owned by MBARI and not regularly associated with a particular ship but often used on MBARI vessels. Mooring winches or equipment are examples.
- C. Temporary scientific equipment - is defined as machinery such as winches, cranes, rigging, and blocks used on the ship for a short period of time such as the duration of a scientific program. This machinery is not owned or maintained by MBARI Marine Operations.

SWL (Safe Working Load) will be the term used in this item. The SWL is defined as the maximum force that a piece of equipment is authorized to support in general service when the pull is applied in-line.

Scientific Sampling Equipment This is temporary science equipment related to overboard or ROV related work that are recovered onboard ISM regulated vessels.



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Minimum design criteria from 46 CFR 189.35

“(1) Wet Weight Handling Gear: Wet gear shall be considered to consist of gear used to lower equipment, apparatus or objects beneath the surface of the water or for trailing objects, where the wire rope or cable is paid out beneath the surface and becomes part of the line pull at the head sheave or winch drum. Wet gear shall be designed, as a minimum, to withstand and operate in excess of the breaking strength of the strongest section or wire to be used in any condition of loading. The safety factor for all metal structural parts shall be a minimum of 1.5; *i.e.*, the yield strength of the material shall be at least 1.5 times the calculated stresses resulting from application of a load equal to the nominal breaking strength of the strongest section or wire rope to be used. Suitable assumptions for the actual loading conditions shall be used in the design of wet gear. “

4. Responsibility

The safety of all persons on board the ship is ultimately the responsibility of the Master. It is the responsibility of the Master to be familiar with the requirements of safe handling and operations of offshore weight handling gear, and to ensure compliance while the equipment is on the ship. Specific responsibilities of the Master may be designated to other officers on board the ship. The designated person and designated responsibilities are to be listed below in the Procedures section for each ship. It is the responsibility of those on board to know their jobs via this procedure.

It is the responsibility of the Master to ensure that all overboarding activities are done in a safe manner.

It is the responsibility of the Chief Engineer / Engineer in charge to maintain the overboarding machinery in a safe and reliable condition. A record is to be kept of all maintenance, failures and repairs to this machinery.



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It is the responsibility of the Master or their designee to maintain in safe and working condition and test as per Permanent Ship's Equipment below, the blocks and loose equipment. A record is to be kept of all testing, maintenance, failures and repairs. Maintenance performed by the engineers to Permanent Ship's equipment is to be logged in engineering maintenance log.

A. Permanent Ship's Equipment

It is the responsibility of the Master to ensure that the correct equipment is used in each application and the SWL is not exceeded. It is the responsibility of the Marine Operations Group to ensure that all new equipment designed for permanent installation on the vessel is built and installed to the proper specifications.

New installation and periodic tests (*see 46 CFR 189.35-5*): Tests should normally consist of exercising the equipment as a unit with a proof load 25 percent in excess of the equipment's normal working load (125%); however, manufacturer's design limitations should not be exceeded. Examination and testing procedures for weight handling equipment used to deploy scientific equipment over-the-side must be followed, documented and recorded.

Blocks, loose equipment –

- 1) Only used rated rigging and hardware for blocks, loose equipment.
- 2) SWL must be stamped on hardware or have a label from the manufacturer in the case of slings. Rigging with no stamp may be used IF a spec sheet can be provided, as is the case with some science rigging gear, nilspin mooring wire, tension members, etc.
- 3) Inspect slings and rigging prior to use and more thorough inspection annually, discard slings with any damage and replace. Annual inspection is documented in deck maintenance log and reported to the office.



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B. MBARI weight handling Equipment

It is the ultimate responsibility of the Master to ensure that the correct equipment is used in each application and the SWL is not exceeded. It is the responsibility of the Marine Operations Group to collect information proving the suitability of the equipment in advance of planned use. It is the responsibility of the person designated by the Master (usually the Chief Mate) to ensure that the equipment is installed as planned and in a safe manner.

Re-termination of the CTD wire is the responsibility of the Instrumentation Technician

C. Temporary Scientific Equipment

New scientific gear is regularly produced and is expected to be used on board MBARI ships as new demands are made by science. It is the responsibility of the equipment owners to be familiar with acceptable standards for offshore Weight Handling Equipment and all applicable rules to assess each new piece of gear to ensure that the proper engineering and testing has been done prior to delivery to the ship. The Marine Operations Group can help in evaluating or specifying equipment for offshore operations. The Master ultimately has discretionary control over the use of any equipment that is used for Weight Handling Gear.

D. Scientific Sampling Equipment

It is the responsibility of the scientist or user to ensure that any experiment or sampling equipment that are planned to be deployed or recovered are designed and tested to acceptable standards by a competent individual. Equipment that contains high internal pressures, large volumes of hazardous chemicals, high power electrical, or automated functions can represent significant hazards for deck operations. Marine Operations has the prerogative to ask for an engineering review of any equipment as it deems necessary to ensure safe operations. Additionally, any deployed or recovered experiment that contains potential hazardous situations such as dangerous gases or chemicals should be submitted for review to Marine Operations for suitability and adequate preparation. For example, dangerous levels of Hydrogen Sulfide, or large quantities of Formalin should be reviewed in advance.



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5. Record Keeping

The Rigging and Equipment log is the official location for logging and recording all testing, maintenance and relevant information which may include data in regards to wire and rope history, which may be handwritten and kept on the bridge.

6. Procedures

General Safety Gear- Hardhats are to be worn by any person involved in crane operations and work vests are to be worn by any person working near the rail where the risk of falling overboard exists. Safety harnesses are to be worn when the Master deems it necessary for safety. Steel toed boots are also required when doing any overboarding or loading operations.

Always notify the bridge prior to putting anything over the side of the ship.

Ship's stability should always be considered prior to any overboarding operation.

A record of each change in length, condition or re-termination of each of the overboarding wires, EM cables, or synthetic rope on the ship is to be noted in the Rigging and Equipment Log.