

# Great Western Painting

## Commercial Diving

### **COMMERCIAL DIVING**

29 CFR 1910.402 - Definitions

29 CFR 1910.410 – Qualifications of dive team

29 CFR 1910.420 – Safe practices manual

29 CFR 1910.421 – Pre-dive procedures

29 CFR 1910.422 – Procedures during dive

29 CFR 1910.423 – Post-dive procedures

29 CFR 1910.425 – Surface-supplied air diving

29 CFR 1910.427 – Lifeboating

29 CFR 1910.430 – Equipment

29 CFR 1910.440 – Recordkeeping requirements

### **Qualification of Dive Team Members:**

Each dive team member will have the experience or training necessary to perform assigned tasks in a safe and healthful manner.

Each dive team member will have experience or training in the following:

- a. the use of tools, equipment and systems relevant to assigned tasks;
- b. techniques of the assigned diving mode: and
- c. diving operations and emergency procedures.

All dive team members will be trained in cardiopulmonary resuscitation and first aid (American Red Cross standard course or equivalent).

All dive team members who are exposed to or control the exposure of others to hyperbaric conditions will be trained in diving-related physics and physiology.

### **Assignments:**

Each dive team member will be assigned tasks in accordance with their experience or training.

**Note: Limited additional tasks may be assigned to an employee undergoing training provided that these tasks are performed under the direct supervision of an experienced dive team member.**

Dive team members will not be required to be exposed to hyperbaric conditions against their will, except when necessary to complete decompression or treatment procedures.

A dive team member will not be permitted to dive or be otherwise exposed to hyperbaric conditions for the duration of any known temporary physical impairment or condition to likely to adversely affect the safety or health of the dive team member.

## **Designated person-in-charge:**

A designated person-in-charge will be at the dive location in charge of all aspects of the diving operation affecting the safety and health of dive team members.

The designated person-in-charge will be a competent person and have the experience and training in the conduct of the assigned diving operation.

## **Safe Practices Manual:**

Our Safe Practices Manual will be made available at each dive location to each dive team member. This manual will, at a minimum, contain:

- a. A copy of 29 CFR 1910.420 as well as our policy for implementing the provisions of this standard.
- b. For each diving mode engaged in, the safe practices manual will include:
  1. Safety procedures and checklists for diving operations;
  2. Assignments and responsibilities of the dive team members;
  3. Equipment procedures and checklists; and
  4. Emergency procedures for fire, equipment failure, adverse environmental conditions, and medical illness and injury.

## **Equipment:**

Each equipment modification, repair, test, calibration or maintenance service will be recorded by means of a tagging or logging system, and include the date and nature of work performed, and the name or initials of the person performing the work.

### Air compressor system.

- a. Compressors used to supply air to the diver will be equipped with a volume tank with a check valve on the inlet side, a pressure gauge, a relief valve, and a drain valve.
- b. Air compressor intakes will be located away from areas containing exhaust or other contaminants.
- c. Respirable air supplied to a diver will not contain:
  1. A level of carbon monoxide (CO) greater than 20 p/m;
  2. A level of carbon dioxide (CO(2)) greater than 1,000 p/m;
  3. A level of oil mist greater than 5 milligrams per cubic meter; or
  4. A noxious or pronounced odor.
- d. The output of air compressor systems will be tested for air purity every 6 months by means of samples taken at the connection to the

distribution system, except that non-oil lubricated compressors need not be tested for oil mist.

### Breathing gas supply hoses.

Breathing gas supply hoses will:

- a. Have a working pressure at least equal to the working pressure of the total breathing gas system;
- b. Have a rated bursting pressure at least equal to 4 times the working pressure;
- c. Be tested at least annually to 1.5 times their working pressure; and
- d. Have their open ends taped, capped or plugged when not in use.

Breathing gas supply hose connectors will:

- a. Be made of corrosion-resistant materials;
- b. Have a working pressure at least equal to the working pressure of the hose to which they are attached; and
- c. Be resistant to accidental disengagement.

Umbilicals will:

- a. Be marked in 10-ft. increments to 100 feet beginning at the diver's end, and in 50 ft. increments thereafter;
- b. Be made of kink-resistant materials; and
- c. Have a working pressure greater than the pressure equivalent to the maximum depth of the dive (relative to the supply source) plus 100 psi.

### Compressed gas cylinders.

Compressed gas cylinders will:

- a. Be designed, constructed and maintained in accordance with the applicable provisions of 29 CFR 1910.101 and 1910.169 through 1910.171.
- b. Be stored in a ventilated area and protected from excessive heat;
- c. Be secured from falling; and have shut-off valves recessed into the cylinder or protected by a cap, except when in use or manifolded.

### Decompression chambers.

- a. Each decompression chamber manufactured after the effective date of this standard, will be built and maintained in accordance with the ASME Code or equivalent.
- b. Each decompression chamber manufactured prior to the effective date of this standard will be maintained in conformity with the code requirements to which it was built, or equivalent.

- c. Each decompression chamber will be equipped with:
  1. Means to maintain the atmosphere below a level of 25 percent oxygen by volume;
  2. Mufflers on intake and exhaust lines, which will be regularly inspected and maintained;
  3. Suction guards on exhaust line openings; and
  4. A means for extinguishing fire, and will be maintained to minimize sources of ignition and combustible material.

#### Gauges and timekeeping devices.

- a. Gauges indicating diver depth which can be read at the dive location will be used for all dives.
- b. Each depth gauge will be deadweight tested or calibrated against a master reference gauge every 6 months, and when there is a discrepancy greater than two percent (2 percent) of full scale between any two equivalent gauges.
- c. A cylinder pressure gauge capable of being monitored by the diver during the dive will be worn by each SCUBA diver.
- d. A timekeeping device will be available at each dive location.

#### Masks and helmets.

Surface-supplied air and mixed-gas masks and helmets will have:

- a. A non-return valve at the attachment point between helmet or mask and hose which will close readily and positively; and
- b. An exhaust valve.

Surface-supplied air masks and helmets will have a minimum ventilation rate capability of 4.5 acfm at any depth at which they are operated or the capability of maintaining the diver's inspired carbon dioxide partial pressure below 0.02 ATA when the diver is producing carbon dioxide at the rate of 1.6 standard liters per minute.

#### Oxygen safety.

- a. Equipment used with oxygen or mixtures containing over forty percent (40%) by volume oxygen will be designed for oxygen service.
- b. Components (except umbilicals) exposed to oxygen or mixtures containing over forty percent (40%) by volume oxygen will be cleaned of flammable materials before use.
- c. Oxygen systems over 125 psig and compressed air systems over 500 psig will have slow-opening shut-off valves.

### Pre-dive procedures, procedures during dive, and post dive procedures.

Pre-dive procedures, procedures during dive, and post dive procedures will be performed in accordance with 29 CFR 1910.421, 422, 423, respectively.

### Surface-supplied air diving.

Our diving operations utilize surface-supplied air. These operations will comply with the following:

#### Limits.

- a. Surface-supplied air diving will not be conducted at depths deeper than 190 fsw, except that dives with bottom times of 30 minutes or less may be conducted to depths of 220 fsw.
- b. A decompression chamber will be ready for use at the dive location for any dive outside the no-decompression limits or deeper than 100 fsw.
- c. A bell will be used for dives with an inwater decompression time greater than 120 minutes, except when heavy gear is worn or diving is conducted in physically confining spaces.

#### Procedures.

- a. Each diver will be continuously tended while in the water.
- b. A diver will be stationed at the underwater point of entry when diving is conducted in enclosed or physically confining spaces.
- c. Each diving operation will have a primary breathing gas supply sufficient to support divers for the duration of the planned dive including decompression.
- d. For dives deeper than 100 fsw or outside the no-decompression limits:
  1. A separate dive team member will tend each diver in the water;
  2. A standby diver will be available while a diver is in the water;
  3. A diver-carried reserve breathing gas supply will be provided for each diver except when heavy gear is worn; and
  4. A dive-location reserve breathing gas supply will be provided.
- e. For heavy-gear diving deeper than 100 fsw or outside the no-decompression limits:
  1. An extra breathing gas hose capable of supplying breathing gas to the diver in the water will be available to the standby diver.
  2. An inwater stage will be provided to divers in the water.
- f. Except when heavy gear is worn or where physical space does not permit, a diver-carried reserve breathing gas supply will be provided whenever the diver is prevented by the configuration of the dive area from ascending directly to the surface.

## Recordkeeping.

The occurrence of any diving-related injury or illness which requires any dive team member to be hospitalized for 24 hours or more will be recorded specifying the circumstances of the incident and the extent of any injuries or illnesses.

Availability of records.

Records will be provided:

- a. Upon the request of the Assistant Secretary of Labor for Occupational Safety and Health, or the Director, National Institute for Occupational Safety and Health, Department of Health and Human Services of their designees.
- b. Upon request by employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.1020 (a)-(e) and (g), the below will be provided:
  1. Safe practices manuals, depth-time profiles, recordings of dives, decompression procedure assessment evaluations, and records of hospitalizations will be provided in the same manner as employee exposure records or analyses using exposure or medical records. Equipment inspections and testing records which pertain to employees will also be provided upon request to employees and their designated representatives.

Commercial diving records and documents will be retained for the following period:

- a. Dive team member medical records (physician's reports) (1910.411) - 5 years;
- b. Safe practices manual (1910.420) - current document only;
- c. Depth-time profile (1910.422) - until completion of the recording of dive, or until completion of decompression procedure assessment where there has been an incident of decompression sickness;
- d. Recording of dive (1910.423) - 1 year, except 5 years where there has been an incident of decompression sickness;
- e. Decompression procedure assessment evaluations (1910.423) - 5 years;
- f. Equipment inspections and testing records (1910.430) - current entry or tag, or until equipment is withdrawn from service;
- g. Records of hospitalizations (1910.440) - 5 years.

After the expiration of the retention period of any record required to be kept for five (5) years, such records will be forwarded to the National Institute for Occupational Safety and Health, Department of Health and Human Services.