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**4123:1-3-21 Diving operations.**

(A) Reserved.

(B) Reserved.

(C) Diving procedures.

(1) Supervision.

A diver, lead diver, or dive supervisor, hereafter referred to only as 'supervisor', shall be designated and shall be in charge of all diving operations.

(2) Timekeeper.

One member selected from within the crew shall be designated and instructed by the supervisor to perform the duties of timekeeper for each dive.

(3) Activities of others.

All parties whose activities in the area could create a hazard to the diving operations shall be so notified by the supervisor and be kept informed when such operations commence and when they are concluded.

(D) Personnel.

All diving personnel shall be properly qualified physically and by training or experience to safely conduct a diving operation.

(1) Diver physical condition.

Divers suffering from severe colds, sinus infections, ear trouble, alcoholic intoxication or its after-effects, acute illness or under the influence of drugs shall not be required to dive.

(a) Frequency of examination.

All diving personnel must undergo a thorough physical examination prior to initial exposure to hyperbaric conditions. Subsequent to initial exam, all diving personnel shall be re-examined at twelve-month intervals.

(b) Physician statement.

A statement is to be provided to the diver's employer certifying the diver's physical qualification or lack of qualification to engage in diving activities. The statement is to include the name of the diver, date and location of the examination, name of examining physician, address of location at which the medical record is stored, and the qualification or disqualification of the diver.

(2) Diver equipment.

Divers shall only use equipment with which they have been thoroughly trained.

(E) Equipment.

(1) Responsibility.

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The employer shall be responsible for furnishing all safety equipment. Where divers provide their own protective equipment, such equipment shall give equal or greater protection than that furnished by the employer.

## (2) Operating conditions.

All equipment used in diving operations shall be in proper operating condition and thoroughly tested, under the supervision of the diving supervisor, prior to use.

## (3) Gas supply.

There shall be both a primary and a secondary source of compressed air for each dive.

## (4) Protection of hoses.

All hoses leading to and from the diver's life support which are exposed to potential damage as a result of falling objects, personnel, traffic, etc., shall be protected.

## (5) Decompression chambers.

(a) For any dives in excess of one hundred feet of water requiring stage decompression a decompression chamber and a qualified attendant shall be available at the job site.

(b) The decompression chamber shall be located to provide easy access and allow for recompression to the required depth within a maximum of five minutes unless the decompression schedule in use requires a shorter surface interval.

(c) A single lock chamber shall not be used.

## (F) Procedures during dive.

### (1) Water entry and exit.

(a) A means capable of supporting the diver shall be provided for entering and exiting the water.

(b) The means provided for exiting the water shall extend below the water surface.

(c) A means shall be provided to assist an injured diver from the water or into a bell.

(2) In the absence of a physician, an employee who has a valid certificate in first aid training, including training in oxygen resuscitation equipment, shall be available at the job site at all times.

(3) The diver's hose shall be attached to a safety harness and not the weight belt except on deep-sea gear.

(4) The diver shall carry a sharp knife as a standard piece of diving equipment.

## (G) Surface-supplied diving operations.

### (1) Topside jobsite.

(a) Warning signals, such as an international "A" flag, shall be displayed during diving operations.

(b) All diving compressors must be situated so that exhaust fumes or other harmful contaminants do not enter the compressor intake.

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- (c) An accurate method of determining the depth of each dive must be provided.
- (d) Divers shall not be required to dive if work is being performed by other personnel overhead where such overhead work creates a hazard to the diver.
- (e) A set of appropriate decompression tables shall be available at the diving site. (For examples, see appendix to this rule).
- (f) At the job site there shall be a list of telephone numbers and locations for: nearest decompression chamber, medical doctor, and transportation.
- (g) A propeller guard shall be installed on all craft used in all liveboating operations.
- (h) Voice communications shall be provided between the dive tender and the boat operator.

## (2) Underwater jobsite.

- (a) A diver's bottom time, or the "residual nitrogen time", from repetitive dives must not exceed "O" group limit as shown in the appendix to this rule. If a diver becomes an "O" group diver twice in a twelve-hour period, he shall not be permitted to dive again for twelve hours. (See the appendix to this rule for tables).
- (b) A diver shall wear a bail-out bottle during all liveboating operations (boat underway).
- (c) Prior to all lifting operations a signal system shall be established and reviewed with all personnel involved with the dive.

## (3) Standby diver.

- (a) A standby diver must be ready to reach the primary diver when the operation involves dives in excess of one hundred feet, any dive requiring stage decompression, or during any operation where the primary diver cannot surface by straight ascent. When two divers are in the water working together, they can be considered as standing by for each other if one can reach the other within three minutes.
- (b) The standby diver is required to tend the primary diver at the point of entry into wrecks, tunnels, etc.

## (H) Self-contained diving (scuba).

### (1) Basic in-water requirements.

Scuba procedures may only be used in situations in which one of the following techniques is provided:

- (a) A "buddy" system, i.e. two divers in the water maintaining constant visual or physical contact with each other; or
- (b) Voice communications between the scuba diver and the surface and if wireless communications are used, a locating means must be provided; or
- (c) A safety line between the diver and a surface tender which provides a means of communications through the use of pull signals on the safety line.

### (2) Equipment.

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- (a) Equipment shall be the open circuit, demand regulator type with a valid interstate commerce commission (ICC) stamp on the air tank.
- (b) Both tank and weight belt shall be equipped with quick release buckles.
- (c) A knife and safety vest are required to be used.

## **(I) Emergency procedures.**

Emergency procedures shall be established to provide for such of the following circumstances as may be applicable and shall be reviewed by the diver and the surface support crew before the dive:

- (1) Loss of voice communications in the water or in the chamber;
- (2) Interruption of the surface gas supply;
- (3) Severance of the diver's hose bundle;
- (4) Entanglement or entrapment;
- (5) Occurrence of oxygen poisoning;
- (6) Occurrence of decompression sickness;
- (7) Occurrence of unplanned buoyant ascent.

## **(J) Underwater cutting and welding.**

- (1) Disconnect switch.

A disconnect switch shall be used in the electrical circuit and shall be located in such a position that the diving tender on the intercommunication system can operate or oversee its operation at all times when the diver is below the surface. The disconnect switch shall be in the open position except when the diver is actually cutting or welding.

- (2) Insulated gloves.

Rubber or other insulated gloves shall be provided and shall be used by the diver during underwater electric cutting and welding operations.

## **(K) Record keeping - diving operations.**

An individual record or log entry for each diving exposure including the following data is to be maintained:

- (1) Location;
- (2) Divers, tenders' and supervisor's names;
- (3) Water depth;
- (4) Bottom time;
- (5) Type of equipment used;

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- (6) Estimated environmental conditions;
- (7) Decompression schedule used;
- (8) Gas used and composition;
- (9) Type of work performed;
- (10) Unusual conditions; and
- (11) Repetitive dive designations or time of last exposure.

(L) Hose and fittings.

(1) Testing and replacement.

- (a) Hose and fittings shall be tested at least once a year to one and one-half times their maximum working pressure. If exposed to rough usage or unusual conditions it shall be inspected more frequently.
- (b) Hose showing abrasion of outer cover which exposes the reinforcement, shall be replaced.
- (c) Couplings that are distorted, have damaged threads, or show an excessive amount of corrosion shall be replaced.
- (d) Hose which has sustained other damage must be pressure tested to one and one-half times the maximum working pressure plus one hundred pounds per square inch, prior to use.
- (e) Records shall be kept of all pressure tests and the test dates; and they shall be signed by the individual responsible for each of them.

(2) Marking.

Each hose section shall be given a serial number for record keeping purposes.

(3) Fittings.

Connections shall be of a type that cannot be accidentally disengaged from the gas supply.

(4) Oxygen piping.

Hard piping systems, fittings and tubings carrying pure, high pressure (up to two thousand five hundred pounds per square inch) oxygen shall be of corrosion resistant metals, such as copper, brass, "300" series stainless steel or monel.