

Interpretation and Application

- 1 These regulations may be cited as the Occupational Diving Regulations.

Definitions

- 2 In these regulations,
 - (a) "Act" means the Occupational Health and Safety Act;
 - (b) "adequate" means sufficient to protect a person from injury or damage to health or safety, and "inadequate" has the opposite meaning;
 - (c) "ADS" or "atmospheric diving system" means a diving system that is capable of withstanding external pressures greater than atmospheric pressure and in which the internal pressure remains at or near 101 kPa, and includes a 1 person submarine and the atmospheric diving system component of a lock-out submersible;
 - (d) "ADS operator" means a person who operates an ADS;
 - (e) "bail-out system" means a secondary breathing system worn by a diver that supplies the diver with breathing mixture in an emergency;
 - (f) "bottom time" means the total elapsed time, rounded to the next whole minute, from the time a diver leaves the surface to the time the diver begins their final ascent;
 - (g) "breathing mixture" means a mixture of gases or pure oxygen intended for human respiration;
 - (h) "breathing mixture supply line" means a hose that is part of an umbilical bundle that supplies breathing mixture to a diver;

- (i) "certificate of fitness" means a certificate signed by a physician that certifies that a person is medically fit to perform their work;
- (j) "competent person" means a person who is
 - (i) qualified because of the person's knowledge, training and experience to do the assigned work in a manner that will ensure the health and safety of every person in the workplace,
 - (ii) knowledgeable about the provisions of the Act and the regulations that apply to the person's assigned work, and
 - (iii) knowledgeable about the potential or actual hazards to health or safety associated with the person's assigned work;
- (k) "compressed gas" means a gas or a gas mixture that has an absolute pressure greater than or equal to 280 kPa at 20 °C;
- (l) "compression chamber" means a pressurized chamber used for diving that is suitable for human occupancy at internal pressures greater than atmospheric pressure;
- (m) "CSA" means the Canadian Standards Association;
- (n) "deep dive" means a dive to a depth greater than 40 m;
- (o) "dive base" means the surface location used as a base for conducting diving;

- (p) "dive conducted in a contaminated environment" means
- (i) a dive that is conducted at or near a point of discharge of noxious effluent, whether the effluent is being discharged or not,
 - (ii) a dive conducted to clean up or contain a noxious contaminant, or
 - (iii) a dive that is conducted within 100 m of residue from a noxious contaminant spill;
- (q) "dive site" means the area in which a dive is conducted, consisting of the dive base, the underwater work site and any area in between them;
- (r) "dive team" means all divers, diving supervisors, standby divers, diver's tenders, ADS operators and SCC attendants who participate in a dive or are required to participate in a dive under Section 9;
- (s) "diver" means a person who works underwater at a pressure greater than the air pressure at the dive base and includes a standby diver, but does not include an ADS operator or an SCC attendant;
- (t) "diver's tender" means a person at a dive base who assists a diver by monitoring the diver's equipment, communicating with the diver, and otherwise monitoring the diver's health and safety;
- (u) "diving supervisor" means a person designated by an employer under Section 7 to have overall supervision of all dives conducted at a dive site;
- (v) "dynamically positioned vessel dive" means a dive conducted from a vessel being held in position through the use of its propulsion system;

- (w) "emergency services dive team" means a dive team trained and equipped to perform rescues during a health or safety emergency;
- (x) "hyperbaric chamber" means a compression chamber that is used for decompression and recompression of divers and in the treatment of pressure-related ailments;
- (y) "in-line gas blender" means a device that continuously mixes and proportions gases at a dive site to produce a breathing mixture;
- (z) "lifeline" means a rope that
 - (i) is secured to a diver at one end and to the dive base or a float at the surface or to an SCC or a lock-out submersible at the other end, and
 - (ii) can be used to retrieve a diver;
- (aa) "liveboating" means a dive conducted while a diver is tethered directly to a vessel under way;
- (ab) "locked-out" means to have done all of the following:
 - (i) isolated an energy source or sources from a machine, equipment, tool or electrical installation,
 - (ii) dissipated any residual energy in a system,
 - (iii) secured the isolation of the energy source or sources by an inhibiting device that is operated by a key or other process;

- (ac) "lock-out submersible" means a self-propelled submersible vessel that is fitted with
- (i) an SCC from which dives are conducted, and
 - (ii) an ADS from which the submersible vessel is operated;
- (ad) "rebreather" means a breathing apparatus that recycles the useable components of a diver's exhaled breath for the diver to breathe;
- (ae) "saturation chamber" means a compression chamber used for a saturation dive that is equipped to permit divers to remain at greater than atmospheric pressure for an unlimited period of time;
- (af) "saturation dive" means a dive performed after a diver's body is fully saturated with nitrogen;
- (ag) "SCC" or "submersible compression chamber" means a compression chamber that
- (i) has an internal pressure of greater than the air pressure at the dive base,
 - (ii) is intended to be submerged,
 - (iii) is designed to transport divers at pressures greater than atmospheric pressure from the surface to an underwater work site and back,
- and includes the SCC component of a lock-out submersible;

- (ah) "scientific dive" means a dive conducted to collect specimens or data for scientific use in a program managed by an educational or research institute but does not include the following:
 - (i) a dive conducted to construct, excavate, salvage, demolish, destroy, maintain, inspect or repair underwater structures,
 - (ii) a dive conducted to collect organisms for consumption or commercial use;

- (ai) "SCUBA" means self-contained underwater breathing apparatus;

- (aj) "stage" means a cage, basket, platform or other device in or on which a diver is transported to and from, into, out of or through the water, but does not include an SCC, an ADS, or a lock-out submersible;

- (ak) "standard first aid certificate" has the same meaning as in the Occupational Health and Safety First Aid Regulations made under the Act;

- (al) "standby diver" means a diver who stands by at a dive base ready to rescue a submerged diver in a health or safety emergency;

- (am) "surface-supplied dive" means a dive in which a diver or ADS operator is supplied with a breathing mixture originating at the surface through a breathing mixture supply line;

- (an) "umbilical bundle" means a number of separate hoses, cables, lines or ropes made up of the following:
 - (i) a breathing mixture supply line,
 - (ii) a lifeline, and

- (iii) hoses, cables, lines or ropes that are capable of supplying power, heat, communications and other services, as required;
- (ao) "underwater work site" means a below-surface location at which work conducted during a dive is performed;
- (ap) "water control structure" means a structure designed to hold back or control water and includes a dam, a head gate, a stop log, a turbine intake gate, a turbine outfall gate, a pump intake gate and a pump discharge gate;
- (aq) "wet bell" means a stage that is equipped with a dry upper compartment; and
- (ar) "work zone" means a zone required by Section 79 that is used to designate specific areas of a dive base when a dive is conducted in a contaminated environment.

Application

- 3 These regulations apply to all dives conducted at a workplace, except the following:
 - (a) a dive using only a snorkel;
 - (b) a scientific dive conducted by an organization that is a member of the Canadian Association for Underwater Science (CAUS), in accordance with the "Standard of Practice for Scientific Diving" 3rd edition (1998), published by the Canadian Association for Underwater Science.

Inconsistency with incorporated standard

- 4 If there is an inconsistency between these regulations and a standard incorporated by reference in these regulations, these regulations prevail over the standard to the extent of the inconsistency.

Compliance with specified editions of standards

5 Where these regulations require that an object, or activity in relation to an object, comply with an edition of a standard published in a specified year,

- (a) if the requirement is to ensure that an object physically conforms to the standard, the object shall be deemed to comply with the standard if
 - (i) it conforms to the physical specifications contained in the latest version of the standard published at the object's date of manufacture, or
 - (ii) in the event that no version of the standard existed at the object's date of manufacture, it conforms to generally accepted engineering principles prevailing at the object's date of manufacture,

unless there is evidence raising a reasonable doubt as to whether the object is adequate;

- (b) if the requirement is to ensure that inspection, maintenance, use or other activity in relation to an object is carried out in accordance with the standard, compliance with the standard is required unless it is established that compliance with a different version of the standard, or with generally accepted engineering principles prevailing at the object's date of manufacture, is more likely to ensure adequate performance of the object.

Duties of parties

- 6 (1) Every person at a dive site must ensure they perform all duties and meet all requirements of these regulations if
 - (a) the duties or requirements are placed directly upon them; or
 - (b) the duties and requirements are not placed directly upon them, they have the greatest degree of control over the matters that are the subject of the duties or requirements.
- (2) Every person at a dive site must ensure that all of the following persons meet all requirements of these regulations:
 - (a) a person in their employ;
 - (b) a person under their supervision; or
 - (c) a person with whom they have a contract.
- (3) A diver must not dive if any of the regulatory duties or requirements are not met, regardless of upon whom the regulations placed the duty or requirement.
- (4) A member of a dive team must comply with all procedures, plans and codes developed for the purposes of these regulations.
- (5) A written procedure, plan or code that is developed for the purpose of these regulations must be adequate and implemented.

Diving Supervisor and Dive Team

Designation of diving supervisor

- 7 An employer must designate, in writing, 1 competent person to be the diving supervisor for a dive site at any one time.

General duties of diving supervisor

- 8
- (1) A diving supervisor must supervise all dives conducted at a dive site and ensure that the Act and these regulations are complied with before a dive, during a dive, and after a dive.
 - (2) A diving supervisor must be at the dive site for which they are the supervisor while a dive is being conducted.
 - (3) A diving supervisor must not dive except in the following circumstances:
 - (a) when it is necessary to do so in a health or safety emergency;
 - (b) when the diving supervisor has delegated the duties of the diving supervisor in writing to another person who is present at the dive site and who is competent to perform the duties of a diving supervisor.

Composition of dive team

- 9
- (1) Before a dive is conducted, a dive team must be present and composed of the number of members required by this Section.
 - (2) Except for a dive that is specifically provided for in subsection (3), (4), (5), (6) or (7), a dive team must consist of the following minimum members:

- (a) 1 diving supervisor;
 - (b) 1 diver's tender;
 - (c) 1 standby diver;
 - (d) 1 diver.
- (3) Except as provided in subsections (4) and (5), a dive team for a SCUBA dive or a surface-supplied dive must consist of a minimum of 3 members as follows:
- (a) 1 diving supervisor who also acts as a standby diver or as a diver's tender;
 - (b) 1 diver's tender or standby diver, whichever position is not performed by the diving supervisor under clause (a);
 - (c) 1 diver.
- (4) A dive team for a SCUBA dive conducted for seafood harvesting, in which the divers are in immediate proximity to each other, must consist of a minimum of 3 members as follows:
- (a) 1 diving supervisor who also acts as a diver's tender;
 - (b) 2 divers.
- (5) A dive team for a surface-supplied deep dive without an SCC must consist of a minimum of 5 members as follows:
- (a) 1 diving supervisor;
 - (b) 1 standby diver;
 - (c) 1 diver's tender;
 - (d) 1 diver;
 - (e) 1 hyperbaric chamber operator.
- (6) Except as provided in subsection (7), a dive team for a dive using an SCC must consist of a minimum of 4 members as follows:
- (a) 1 diving supervisor who also acts as a standby diver or diver's tender;
 - (b) 1 standby diver or diver's tender;

- (c) 1 diver;
 - (d) 1 SCC attendant.
- (7) A dive team for a deep dive using an SCC must consist of a minimum of 6 members as follows:
- (a) 1 diving supervisor;
 - (b) 1 diver's tender;
 - (c) 1 standby diver;
 - (d) 1 diver;
 - (e) 1 SCC attendant;
 - (f) 1 hyperbaric chamber attendant

Standby diver

- 10 (1) A standby diver must not dive except in a health or safety emergency.
- (2) A standby diver must wear and have all appropriate diving and communication equipment necessary for the depths and circumstances planned for a dive they are participating in and the equipment must be checked before the dive so that the standby diver can quickly perform a rescue in a health or safety emergency.

Submersible compression chamber attendant

- 11 (1) An SCC attendant who is required as a member of a dive team must be assigned to attend a diver and the assigned SCC attendant must be in the SCC when the diver is in the water.
- (2) An SCC attendant must meet the following requirements:
- (a) they are trained to conduct a rescue;
 - (b) they are dressed to dive;
 - (c) they have the appropriate diving equipment and communication equipment for the depth and circumstances of the dive checked to ensure they operate adequately and are readily available.

- (3) An SCC attendant must not dive except in a health or safety emergency.
- (4) An SCC attendant must monitor the health and safety of a diver who is conducting a dive from the SCC and must be ready to rescue the diver in a health or safety emergency.

Certificate of fitness

- 12 (1) Except for a person who has had a pressure-related ailment, a person may act as a diver only if they meet the following fitness requirements:
- (a) during the 24 months immediately before the dive or during such shorter period of time before a dive as is recommended by their physician, they have undergone a medical examination to determine their fitness to dive;
 - (b) they have a certificate of fitness from the physician who performed their most recent medical examination required by clause (a) stating that they are fit to dive and what limitations, if any, are placed on their fitness to dive.
- (2) A person who has had a pressure-related ailment may only act as a diver if they meet the following fitness requirements:
- (a) after the date the pressure-related ailment was diagnosed and during the 24 months immediately before the dive, they have undergone a medical examination to determine their fitness to dive;

- (b) they have a certificate of fitness from the physician who performed their most recent medical examination required by clause (a) stating that they are fit to dive and what limitations, if any, are placed on their fitness to dive.

- (3) A person may act as an ADS operator only if they meet the following fitness requirements:
 - (a) during the 24 months immediately before a dive or during such shorter period of time before a dive as is recommended by their physician, they have undergone a medical examination to determine their fitness to operate an ADS;
 - (b) they have a certificate of fitness from the physician who performed their most recent medical examination required by clause (a) stating that they are fit to operate an ADS and what limitations, if any, are placed on their fitness to operate an ADS.

- (4) A person may act as an SCC attendant only if they meet the following fitness requirements:
 - (a) during the 24 months immediately before a dive or during such shorter period of time before a dive as is recommended by their physician, they have undergone a medical examination to determine their fitness to perform the duties of an SCC attendant and operate an SCC;

- (b) they have a certificate of fitness from the physician who performed their most recent medical examination required by clause (a) stating that they are fit to perform the duties of an SCC attendant and operate an SCC and what limitations, if any, are placed on their fitness to perform the duties of an SCC attendant and operate an SCC.
- (5) A certificate of fitness must include the date of the medical examination and the examining physician's name, address and signature.

Certificate of fitness confirmed and available

- 13**
- (1) A diver, ADS operator or SCC attendant must have their most recent certificate of fitness available for inspection by an officer within 24 hours of receiving an order from an officer.
 - (2) Before permitting a diver, ADS operator or SCC attendant to participate in a planned dive or dives, an employer and a diving supervisor must ensure that their certificate of fitness
 - (a) is confirmed as valid by the diving supervisor; and
 - (b) clears the diver, ADS operator or SCC attendant to do any work they may be called upon to perform during a dive.

Medical examination standard

- 14** A medical examination required by subsection 12(1), (2), (3) or (4) must be carried out by a physician considering the factors listed in the "Occupational Diver's Medical Fitness Examination," Annex B of CSA standard Z275.2-04 "Occupational Safety Code for Diving Operations".

Person who is unfit must not dive

- 15 A diver, ADS operator or SCC attendant who is ill, fatigued, impaired, injured or otherwise unfit to dive must not dive and must notify the diving supervisor of their condition.

Competency of diving supervisor, diver and diver's tender

- 16 Each diving supervisor, diver and diver's tender must meet the competency requirements set out in CSA Standard Z275.4-02, "Competency Standard for Diving Operations" for their position and the depths and circumstances of the dive.

First aid certificate

- 17 (1) All members of a dive team must hold a valid standard first aid certificate before a dive is conducted at a dive site.
- (2) A member of a dive team must have their standard first aid certificate available for inspection by an officer within 24 hours of receiving an order from an officer.

Oxygen therapy training

- 18 All members of a dive team must be trained in the use of oxygen therapy equipment that is provided at a dive site.

Photo identification at dive site

- 19 All members of a dive team must have photo identification available at a dive site.

Dive Plan and Emergency Arrangements

Dive plan

- 20** (1) Before a dive is conducted at a dive site, a written dive plan that meets the requirements of this Section must be prepared for the dive.
- (2) Except for a dive plan for a dive conducted by an emergency services dive team engaged in a health or safety emergency rescue operation, a dive plan must be tailored to the specific dive site at which the dive will be conducted.
- (3) A dive plan must be prepared in consultation with the dive team for the dive.
- (4) A dive plan must include all of the following for every dive covered by the dive plan that is conducted at a dive site:
- (a) a description of the tasks to be performed at the dive site and how they are to be performed;
 - (b) work procedures for each type of dive in which a diver or ADS operator is likely to be engaged at the work site, including the diving equipment to be used in each type of dive;
 - (c) estimated and maximum time to be spent at each depth;
 - (d) decompression tables and procedures to be used;
 - (e) procedures for the identification and control of any known or anticipated health or safety hazards at the dive site;
 - (f) a list of industrial plants and water control facilities in the immediate area of the dive site;

- (g) instructions for getting medical assistance in a health or safety emergency, including instructions for contacting a physician with whom arrangements have been made under Section 24;
- (h) emergency procedures for evacuating an ill or injured diver or ADS operator from the dive site;
- (i) emergency procedures for responding to a loss of any communication required by these regulations;
- (j) emergency procedures for responding to a diving equipment malfunction;
- (k) emergency procedures for responding to hazardous weather or water conditions;
- (l) emergency procedures for aborting a dive;
- (a) emergency procedures for responding to any difficulties in keeping the dive base stationary;
- (n) emergency procedures for accessing a back-up SCC required by Section 62; and
- (o) emergency procedures for accessing a back-up ADS required by Section 65.

Briefing dive team

21 Before a planned dive or dives are conducted, the diving supervisor for the planned dive or dives must brief the rest of the dive team on all of the following for the planned dive or dives:

- (a) the dive plan;
- (b) the tasks to be performed;
- (c) the estimated time and maximum time to be spent at each depth;
- (d) the maximum depth to be reached;
- (e) the decompression procedures to be used;
- (f) the planned location of all divers;

- (g) the communication signals to be used;
- (h) if a dive in a contaminated environment is planned, the contaminant management plan required by Section 80.

Maximum time of dive as in dive plan

- 22 Except in a health or safety emergency, a diver must not remain at any depth longer than the maximum time set out in the dive plan for that depth in the dive.

List of hyperbaric chambers and hospitals

- 23 An up-to-date list must be kept at a dive site that contains all of the following:
- (a) the location of nearby hyperbaric chambers and a contact telephone number for each location;
 - (b) the name, location and telephone number of the hospital nearest the dive site.

Arrangements with physician for health or safety emergency

- 24 (1) Written arrangements must be made with 1 or more physicians, as necessary, so that any medical advice or support that may be required is available in a health or safety emergency for any of the following:
- (a) a deep dive that is conducted without the use of an ADS;
 - (b) a dive in which the total time required for in-water decompression is greater than 10 minutes and decompression occurs at a depth greater than 3.5 m.
- (2) An effective means of communication between a physician and a diving supervisor must be available during a dive for which arrangements with a physician are required under subsection (1) and for at least 48 hours after the dive is completed.

Decompression and Post-Dive Care of Diver

Decompression tables and procedures

- 25 (1) Decompression must be conducted in accordance with adequate decompression tables and procedures.
- (2) Decompression tables and procedures to be used in a dive must be kept at the dive site.

Observation period after dive

- 26 A diver who has completed a dive in which decompression is used for a total in-water decompression time greater than 10 minutes and at a depth greater than 3.5 m, must remain near a hyperbaric chamber under the observation of a competent person for the following time periods:
- (a) at least 1 hour immediately after a dive other than a saturation dive;
- (b) at least 2 hours immediately after a saturation dive.

Air travel after dive

- 27 (1) A diver who has conducted a dive in which decompression is not used must not fly in an aircraft with a cabin pressure lower than the equivalent of 300 m above the dive site where the dive was conducted for at least 12 hours immediately after the dive.
- (2) A diver who has completed a dive in which decompression is used for a total in-water decompression time greater than 10 minutes and at a depth greater than 3.5 m must not fly in an aircraft with a cabin pressure lower than the equivalent of 300 m above the dive site where the dive was conducted for at least 24 hours immediately after the dive.
- (3) Subsections (1) and (2) do not apply if emergency evacuation of the diver is required.

Care of diver with pressure-related ailment

- 28 (1) A diver, ADS operator or SCC attendant who shows any symptom of a pressure-related ailment or who requires therapeutic recompression for any reason must be immediately given first aid and a physician must be notified of the situation.
- (2) A diver who is placed in a hyperbaric chamber to treat a diving ailment must stay in the hyperbaric chamber until a physician approves the diver's removal from the chamber.
- (3) If a diver with a diving ailment is transported by aircraft, all of the following must be met:
- (a) the flight altitude must be as prescribed by a physician;
 - (b) oxygen must be available for therapeutic purposes during the flight;
 - (c) the diver must be accompanied by a person, other than the pilot or co-pilot, who is competent to do all of the following:
 - (i) administer oxygen,
 - (ii) monitor the diver's condition,
 - (iii) recognize changes in the diver's condition,
 - (iv) initiate adequate intervention.

Dive Site and Dive Base

Dive site

- 29** (1) An adequate location must be selected for a dive site.
- (2) Buoys, lights, flags, lamps, barriers or placards must be placed and displayed to define the boundaries of a dive site.
- (3) A notice clearly setting out the boundaries of a dive site must be posted on the bridge of each vessel at the dive site.
- (4) Only equipment to be used in connection with a dive may be brought within the boundaries of a dive site.

Dive base

- 30** (1) A dive base must meet all of the following requirements:
- (a) it must be adequate;
 - (b) it must be located at one of the following, or at another similar location:
 - (i) onshore,
 - (ii) on a stable platform,
 - (iii) on an adequate and seaworthy boat or watercraft;
 - (c) it must be of sufficient size to accommodate all persons and equipment that are to be at the dive base;
 - (d) it must be equipped with all of the following:
 - (i) for a deep dive, sufficient oxygen for use for therapeutic purposes in a health or safety emergency,

- (ii) if the dive plan requires therapeutic oxygen to be present, sufficient oxygen for use for therapeutic purposes in a health or safety emergency,
- (iii) if temperature conditions make it necessary, a climate-controlled facility for all persons
- (iv) a means to help members of a dive team into and out of the water,
- (v) a means to immediately bring an unconscious member of a dive team out of the water.

(2) If a dive base is not onshore, the dive base must be equipped with at least 2 means of evacuating persons.

(3) If a boat or watercraft is used as a dive base, the boat or watercraft must be

- (a) capable of remaining stationary without posing a hazard to the health or safety of a diver or ADS operator; and
- (b) capable of moving without posing a hazard to the health or safety of a diver or ADS operator.

Communications

Diving supervisor's communication with dive team

- 31** There must be an effective means of communication between the diving supervisor and every other member of the diving supervisor's dive team.

2-way communication between diving supervisor and diver, ADS operator or SCC attendant

- 32** (1) Each diver, ADS operator or SCC attendant on the diving supervisor's dive team must be connected to the diving supervisor during a dive by a 2-way communication system that meets the requirements of this Section.
- (2) A 2-way communication system must allow 2-way communication by voice between a diver and a diving supervisor, ADS operator or SCC attendant in all of the following circumstances:
- (a) a deep dive;
 - (b) a dive in which the total time required for in-water decompression is greater than 10 minutes and decompression occurs at a depth greater than 3.5 m;
 - (c) a dive in which the average currents during the dive are greater than 2 km per hour;
 - (d) a dive in which the diver uses a power tool, explosive, burning equipment or welding equipment;
 - (e) a dive in which the diver directs the use of a hoisting device to place material underwater while the diver is underwater;

- (f) a dive in which the diver is in or near a pipe that is larger than 10 cm in diameter, a tunnel, duct, underwater intake or other confined space that may cause an entrapment hazard;
- (g) a dive in which the diver is in or near a water control structure;
- (h) a dive in which the diver places any material underwater in a way that may pose a hazard to the health or safety of a diver;
- (i) a dive in which an ADS is used;
- (j) a dive in which an SCC is used;
- (k) a dive conducted in a contaminated environment, unless it is not reasonably practicable.

(3) In circumstances other than those listed in subsection (2), a 2-way communication system must be adequate and must allow 2-way communication

- (a) by voice; or
- (b) by pre-arranged communication signals on a lifeline or float.

Communications for deep dive or dive using ADS or SCC

33 (1) The 2-way communication system required for a deep dive or a dive in which an ADS is used must

- (a) have sound reproduction that enables the diver's or an ADS operator's breathing to be heard clearly; and
- (b) if a breathing mixture contains helium or any other gas that distorts voice transmissions, be equipped with an unscrambler.

- (2) For a deep dive or a dive in which an ADS or SCC is used, all of the following must be met:
- (a) all communications through the 2-way voice communication system must be recorded;
 - (b) all recordings from the 2-way voice communication system must be kept for at least 48 hours;
 - (c) a diver, an ADS or an SCC must be connected to the dive base by a back-up 2-way communication system that is independent of the voice communication system required by Section 32.

Communications used with a stage

- 34** (1) If a stage is used to transport a diver underwater, there must be a 2-way voice communication system in place that allows continuous communication between the diver and the diving supervisor during the transport.
- (2) If a stage is used to transport a diver other than underwater, there must be a system of pre-arranged visual communication signals or a 2-way voice communication system in place that allows continuous communication between the diver and the diving supervisor during the transport.

Breathing Mixtures and Breathing Equipment

Breathing mixture selected

- 35** (1) A breathing mixture used by a diver must
- (a) be appropriate for the depth and circumstances of the dive; and
 - (b) meet the requirements for purity of breathing mixtures set out in CSA Standard Z275.2-04, "Occupational Safety Code for Diving Operations."
- (2) A breathing mixture used for a dive conducted using an ADS must contain the same proportions of nitrogen and oxygen as in air.
- (3) Pure oxygen must not be used as a breathing mixture for a dive that is to a depth of greater than 7.5 m, except when it is necessary for therapeutic purposes or for decompression.

Primary and secondary breathing mixture supplies

- 36** (1) The total supply of breathing mixture that is available at a dive site during a dive must consist of all of the following:
- (a) a primary breathing mixture supply sufficient to complete the dive as planned;
 - (b) an adequate secondary breathing mixture supply for use in an emergency.
- (2) A secondary breathing mixture supply must consist of the following:
- (a) for a SCUBA dive, a fully charged cylinder and a regulator;

- (b) for a surface-supplied dive, an amount of breathing mixture sufficient to enable a diver to safely return to the surface in accordance with any decompression tables and procedures for the dive;
- (c) for a dive in which an SCC or lock out submersible is used, an amount of breathing mixture sufficient to safely meet the needs of the SCC's or lock out submersible's occupants for at least 24 hours;
- (d) for dive in which an ADS is used, an amount of breathing mixture sufficient to safely meet the needs of the ADS's occupants for at least 48 hours, except where the ADS is a component of a lock-out submersible;
- (e) for a dive in which an in-line gas blender or rebreather is used, an amount of breathing mixture sufficient to enable the diver to safely return to the surface in accordance with any decompression tables and procedures for the dive;
- (f) for a dive in which a hyperbaric chamber is required, an amount of breathing mixture sufficient to enable the diver to undergo any decompression required to treat any pressure-related illness.

Breathing mixture supply system

- 37 (1) A breathing mixture supply system used for a dive must be appropriate for the depths and circumstances of the dive.

- (2) A breathing mixture supply system must be designed so that an interruption of breathing mixture supply to
- (a) a diver will not affect the delivery of breathing mixture
 - (i) to any other diver,
 - (ii) from that diver's bail-out system,
 - (iii) from any secondary breathing mixture supply,
 - (b) an SCC or ADS will not affect the delivery of breathing mixture from any secondary breathing mixture supply.

Compressors

- 38** (1) A compressor used to supply a breathing mixture to a diver or ADS operator
- (a) must be able to maintain double the volume of breathing mixture required by the diver or ADS operator, at a pressure at least 25% greater than the maximum pressure required to supply the breathing mixture to the diver or ADS operator; and
 - (b) must discharge the breathing mixture through purification filters and into a receiver with adequate volume.
- (2) A compressor used to supply a breathing mixture must be operated by a competent person.

Oxygen supply system

- 39** An oxygen supply system used at the dive site must meet all of the following requirements:
- (a) it must be designed specifically to supply oxygen
 - (i) so that the possibility of contaminating the oxygen is minimized, and
 - (ii) at no greater than 1000 kPa above the pressure of the maximum diving depth;
 - (b) it must be adequate for the circumstances in which it will be used;
 - (c) it must be kept clean;
 - (d) it must not include any quick-opening valves, except for valves used for emergency shut-off.

Oxygen storage facility

- 40** Any building or structure used to store oxygen at the dive site must meet all of the following requirements:
- (a) it must be mechanically ventilated;
 - (b) it must be posted with warning signs indicating that it contains oxygen;
 - (c) it must be equipped with an adequate means of extinguishing fire;
 - (d) it must be maintained by a competent person;
 - (e) it must be located away from combustible materials.

Diving Equipment and Use of Diving Equipment

Condition and testing of diving equipment

- 41 (1) All diving equipment that is necessary to health or safety must be in adequate condition and the equipment must be constructed in a way that ensures against malfunctions caused by any of the following:
- (a) low air temperatures;
 - (b) low water temperatures;
 - (c) the expansion of gas.
- (2) All diving equipment that is necessary to health or safety must be
- (a) examined by a competent person at least once each day it is used; and
 - (b) tested, repaired and maintained by a competent person, in accordance with the manufacturer's specifications.
- (3) An owner of diving equipment must keep a record of any diving equipment test for at least 2 years after the date of the test or until the diving equipment is retested, whichever is longer.

Equipment maintenance and operating materials at dive site

- 42 All written material necessary for maintaining and operating the diving equipment to be used in a dive must be available at the dive site.

Diving equipment malfunction

- 43 (1) A member of a dive team who becomes aware of a diving equipment malfunction must
- (a) immediately notify all of the following:
 - (i) the diving supervisor,
 - (ii) the diver's tender

- (iii) any other diver, ADS operator, or SCC attendant who may be affected by the malfunction; and
 - (b) if the malfunction occurs during a dive, immediately abort the dive in co-operation with the diving supervisor.
- (2) Diving equipment that is malfunctioning
 - (a) must not be used until it is repaired; and
 - (b) must be clearly identified as malfunctioning until it is repaired.
- (3) An owner of diving equipment must keep a record of a diving equipment repair for at least 2 years after the date of the repair.

Personal diving equipment

- 44** (1) Each diver must be equipped with all of the following diving equipment:
- (a) a knife that is strong and sharp;
 - (b) weights that are sufficient to control buoyancy;
 - (c) a diving suit or other protective clothing if a diving suit is not necessary because of the circumstances of the dive;
 - (d) a diving harness.
- (2) Immediately before conducting a dive, a diver must check that they have the diving equipment required by subsection (1) and that it is functioning properly.

Head protection

- 45** (1) A diver must wear adequate head protection while conducting a dive that exposes the diver to a hazard of falling objects or head injuries.

- (2) Section 11 of the Occupational Safety General Regulations made under the Act, does not apply to a diver.

Gauges and metering equipment

- 46** Any gauge or metering equipment that may affect the health or safety of a person must have been tested by a competent person within the 12 months immediately before it is used.

Lifelines

- 47** (1) Except as provided in Section 49, a diver must be equipped with a lifeline, rings, hooks, and other attachment hardware that meet the requirements of this Section.
- (2) A lifeline and any associated rings, hooks, or other attachment hardware used by a diver at a dive site must meet all of the following requirements:
- (a) they must be securely attached to the diver's harness;
 - (b) they must be free of knots, except for any knot needed to attach the lifeline to the diver's harness, the dive base or a float;
 - (c) they must be free of joins that could lower the breaking strength below 14kN;
 - (d) they must be strong enough to support 10 times the weight of the diver and the diver's equipment;
 - (e) they must have a breaking strength of at least 14 kN;
 - (f) for a surface-supplied dive, they must be securely attached to the dive base;
 - (g) for a SCUBA dive, they must be securely attached to the dive base or to a float that is visible to the diver's tender;

- (h) for a dive in which an SCC or a lock-out submersible is used, they must be securely attached to the SCC or the lock-out submersible;
 - (i) for a dive in which an umbilical bundle is used, they are incorporated in the umbilical bundle and are attached to the diver's harness in a manner that prevents strain on the diver's helmet and hose;
- (3) Any rings, hooks or other attachment hardware must meet the requirements for class I connectors as set out in CSA Standard CAN/CSA Z259.12-01, "Connecting Components for Personal Fall Arrest Systems (PFAS)".
- (4) A standby diver must be equipped with a lifeline that is at least 3 m longer than the lifeline of any diver that the standby diver may need to rescue.
- (5) An SCC attendant must be equipped with a lifeline that is at least 3 m longer than the lifeline of any diver performing a dive from the SCC.

Monitoring lifelines

- 48** A diver's lifeline must be monitored by a diver's tender at all times during a dive.

Safety precautions for dives conducted without a lifeline

- 49** (1) A diver who is conducting a SCUBA dive is not required to be equipped with a lifeline if they use one of the following safety precautions:

- (a) a buddy system, in which 2 divers remain in constant visual or physical contact at all times and both divers surface immediately if they lose contact;
 - (b) constant audio communication with the surface.
- (2) A diver or SCC attendant is not required to be equipped with a lifeline if they are equipped with a device that offers a level of protection equivalent to the level of protection offered by a lifeline.
- (3) A diver conducting a dive in open water without a lifeline must carry an audio locating device or a visual locating device.

Umbilical bundle

- 50** Except for an SCC attendant who dives in a health or safety emergency, a diver who exits from an SCC must not be equipped with an umbilical bundle that is longer than 50 m.

Stages

- 51**
- (1) A stage must be used to transport a diver to and from the water during a dive that is conducted from a dive base that is higher than 5 m above the water.
 - (2) A stage must meet all of the following requirements:
 - (a) it must be adequate;
 - (b) it must be designed for transporting persons;
 - (c) it must be secured against tipping and spinning;
 - (d) it must not contain any equipment capable of interfering with an occupant's foothold or handhold;
 - (e) it must be of sufficient size to accommodate all persons and equipment being lifted;

- (f) it must be approved by an engineer;
 - (g) it must be constructed or equipped to prevent an occupant from falling out;
 - (h) it must be constructed or equipped with handholds arranged so that crushed hand injuries are avoided.
- (3) A stage that is used in a dive must be available throughout the dive for the immediate recovery of a diver in case of a health or safety emergency.

Fall arrest system for stage

- 52** (1) A fall arrest system that meets the requirements of this Section must be used for a dive in which a stage is used if there is a possibility that the stage might fall
- (a) farther than 3 m;
 - (b) into or onto machinery; or
 - (c) into or onto a hazardous substance or object.
- (2) A fall arrest system must meet all of the following requirements:
- (a) it must be designed so that the stage cannot free fall farther than 1.5 m;
 - (b) it must be secured to supports on both the stage and the hoisting device moving the stage that are capable of resisting any reasonably anticipated arrest force;
 - (c) it must be attached to secondary supports on both the stage and the hoisting device moving the stage that are of at least the same strength as the primary support required in clause (b).

Hoisting device for stage

- 53 (1) A hoisting device that is used to move a stage carrying a diver must
- (a) be available throughout a dive for the immediate recovery of a diver in a health or safety emergency; and
 - (b) have a back-up means of recovering a diver if the primary hoisting mechanism fails.
- (2) Except in a health or safety emergency, all directions to the operator of a hoisting device must be given by the diving supervisor.

Wet bell

- 54 A wet bell that is used in a dive must meet all of the following requirements:
- (a) it must be large enough to safely accommodate all submerged divers;
 - (b) it must be equipped with a sufficient amount of breathing mixture to safely decompress the divers in a health or safety emergency.

Condition of compression chamber

- 55 A compression chamber must be examined in accordance with the manufacturer's specifications and must be found to be in good working condition some time in the 24 hours immediately before it is used.

Pressure leak on compression chamber

- 56 (1) A compression chamber must be subjected to a pressure leak test at all of the following times:
- (a) some time in the 90 days immediately before it is used;
 - (b) after the compression chamber is moved and assembled;

- (c) after the compression chamber is repaired, altered or parts of it are replaced and the repair, alteration or replacement might affect its safety.
- (2) A pressure leak test on a compression chamber must be conducted using an appropriate breathing mixture to a pressure that is the greater of
- (a) the maximum working pressure that may be encountered during a planned dive or dives plus 100 kPa; and
 - (b) 600 kPa.

Internal pressure test on compression chamber

- 57 (1) A compression chamber must be subjected to an internal pressure test some time in the 5 years immediately before it is used.
- (2) An internal pressure test on a compression chamber must be conducted to a pressure of at least 1.25 times the maximum working pressure of the compression chamber.

Breathing mixture required for compression chamber

- 58 (1) The amount of breathing mixture required for using a compression chamber for a dive is the total of the following:
- (a) the amount required to pressurize the chamber to the greater of
 - (i) 500 kPa, and
 - (ii) the pressure at the greatest depth the chamber is planned to be used in a dive;
 - (b) the amount required to ventilate the chamber at the greater of
 - (i) 500 kPa, and

- (ii) the pressure at the greatest depth the chamber is planned to be used in a dive.
- (2) Twice the amount of breathing mixture required for using a compression chamber must be available at a dive site when conducting a dive using a compression chamber.

Pressurized container used to hold compressed gases

- 59
- (1) A pressurized container used to hold compressed gases must be examined in accordance with the manufacturer's specification and have been found to be in good working condition some time in the 24 hours immediately before it is used.
 - (2) A pressurized container used to hold compressed gases that is intended to be immersed in water must be
 - (a) tested on manufacture in accordance with CSA standard CAN/CSA B339-02, "Cylinders, Spheres and Tubes for the Transportation of Dangerous Goods"; and
 - (b) visually inspected, both internally and externally, some time in the year immediately before it is used.
 - (3) An owner of diving equipment must keep a written record of a test or an inspection performed under subsection (2) for at least 1 year.
 - (4) A pressurized container used to hold compressed gases that is not intended to be immersed in water must be:

- (a) tested on manufacture in accordance with CSA standard CAN/CSA B339-02, "Cylinders, Spheres and Tubes for the Transportation of Dangerous Goods"; and
 - (b) visually inspected, both internally and externally, some time in the 5 years immediately before it is used.
- (5) An owner of diving equipment must keep a written record of a test or an inspection performed under subsection (4) for at least 2 years.

Hyperbaric chamber at dive site

- 60** (1) Except as provided in subsection (2) or unless a physician states in writing that a hyperbaric chamber is not required at a dive site, there must be a hyperbaric chamber at the dive site in any of the following circumstances:
- (a) when there is a significant chance of a pressure-related illness occurring;
 - (b) when a deep dive is conducted.
- (2) A hyperbaric chamber is not required for a dive conducted for seafood harvesting in either of the following circumstances:
- (a) when the total time planned for in-water decompression is less than 10 minutes;
 - (b) decompression of the divers occurs at a depth of less than 3.5 m.
- (3) A hyperbaric chamber used for a dive conducted at a dive site must be a Class A double-lock type hyperbaric chamber that is
- (a) in adequate operable condition; and

- (b) tested on manufacture and conforms to CSA standard CAN/CSA Z275.1-93 (R2004), "Hyperbaric Facilities."
- (4) A hyperbaric chamber must be operated in accordance with CSA standard CAN/CSA Z 275.1-93 (R2004), "Hyperbaric Facilities" by a person who
 - (a) meets the qualifications for a hyperbaric chamber operator set out in CSA Standard Z275.4-02, "Competency Standard for Diving Operations"; and
 - (b) is assigned no other duties that would conflict with their operation of the hyperbaric chamber.

Submersible compression chamber (SCC)

- 61** (1) An SCC used at a dive site must have adequate depth capacity and must
- (a) conform to clauses (1) through (9) and (13) of CSA standard CAN/CSA Z275.1-93 (R2004), "Hyperbaric Facilities";
 - (b) have been tested on manufacture and be operated in accordance with clauses (1) through (9) and (13) of CSA standard CAN/CSA Z275.1-93 (R2004), "Hyperbaric Facilities"; and
 - (c) be capable of mating to a hyperbaric chamber in accordance with clauses (1) through (9) and, for a saturation dive, with clause (12) of CSA standard CAN/CSA Z275.1-93 (R2004), "Hyperbaric Facilities".

(2) An SCC used at a dive site must be designed so that it is capable of all of the following:

- (a) transferring persons under pressure into and out of a hyperbaric chamber;
- (b) accommodating the number of occupants that the SCC is to carry without overcrowding;
- (c) enabling a diver to enter and exit the SCC easily;
- (d) enabling a diver or SCC attendant to disconnect or shear the umbilical bundle of the SCC in a health or safety emergency;
- (e) enabling the secondary breathing mixture supply to be brought on-line from within the SCC;
- (f) ensuring that the secondary breathing mixture supply system cannot be accidentally operated.

(3) An SCC used at a dive site must be equipped with all of the following and all of the following must function adequately:

- (a) a mechanism for shedding ballast weights that
 - (i) can be operated from within the chamber, and
 - (ii) is designed to ensure against accidental shedding of ballast;
- (b) doors and hatches that can act as pressure seals and can be opened from either side;
- (c) valves, gauges, and other fittings that control pressure within the chamber and that clearly indicate internal and external pressures;

- (d) pressurization valves and main exhaust valves that are spring-loaded to close when not held in the open position;
- (e) primary internal lighting equipment and emergency back-up internal lighting equipment;
- (f) hoisting equipment for recovering an unconscious or injured diver from the SCC;
- (g) heating equipment;
- (h) emergency thermal protection for all occupants;
- (i) an emergency outside stroboscopic light;
- (j) an emergency locating device;
- (k) instruments that monitor the temperature, oxygen and carbon dioxide levels within the SCC;
- (l) primary and emergency carbon dioxide scrubbers;
- (a) hull shut-off valves on all gas and water penetrations into the SCC;
- (n) a primary support adequate to support 4 times the weight of the SCC;
- (o) a secondary support that is of at least the same strength as the primary support required;
- (p) first aid supplies;
- (q) a blind port;
- (r) a tool kit;

Back-up submersible compression chamber

- 62** For a dive in which an SCC is used, a back-up SCC that meets the requirements of these regulations must be available for deployment at the dive site within 24 hours of a health or safety emergency.

Saturation chamber

- 63** A saturation chamber used at a dive site must
- (a) conform to clauses (1) through (9) and clause(12) of CSA standard CAN/CSA Z275.1-93 (R2004), "Hyperbaric Facilities"; and
 - (b) have been tested on manufacture and be operated in accordance with clauses (1) through (9) and clause (12) of CSA standard CAN/CSA Z275.1-93 (R2004), "Hyperbaric Facilities".

Atmospheric diving system (ADS)

- 64** (1) An employer and a diving supervisor must ensure that an ADS used at the dive site must be registered or certified under one of the following:
- (a) "DNV-OS-E402 - Offshore Standard for Diving Systems", 2004 published by Det Norske Veritas;
 - (b) "Rules for Building and Classing Underwater Vehicles, Systems and Hyperbaric Facilities", 2002, published by the American Bureau of Shipping.
- (2) An ADS used at a dive site must be designed so that it is capable of all of the following:
- (a) enabling a diver or an ADS operator to disconnect or shear the umbilical bundle of the system in a health or safety emergency;
 - (b) enabling the secondary breathing mixture supply to be brought on-line from within the ADS;
 - (c) ensuring that the secondary breathing mixture supply system cannot be accidentally operated.

- (3) An ADS used at a dive site must be equipped with all of the following and all of the following must function adequately:
- (a) a mechanism to shed ballast weights that
 - (i) can be operated from within the ADS, and
 - (ii) is designed to ensure against accidental shedding of ballast;
 - (b) doors and hatches that can act as pressure seals and can be opened from either side;
 - (c) valves, gauges, and other fittings that can control pressure within the ADS and clearly indicate internal and external pressures;
 - (d) pressurization valves and main exhaust valves that are spring-loaded to close when not held in the open position;
 - (e) primary internal lighting equipment and emergency back-up internal lighting equipment;
 - (f) hoisting equipment capable of recovering an unconscious or injured diver from the ADS;
 - (g) heating equipment;
 - (h) emergency thermal protection for all occupants;
 - (i) an emergency outside stroboscopic light;
 - (j) an emergency locating device;
 - (k) instruments that monitor the temperature, oxygen, and carbon dioxide levels within the ADS;
 - (l) primary and emergency carbon dioxide scrubbers;
 - (m) hull shut-off valves on all gas and water penetrations into the ADS;

- (n) a primary support adequate to support 4 times the weight of the ADS;
- (o) a secondary support that is of at least the same strength as the primary support required;
- (p) first aid supplies;
- (q) a blind port;
- (r) a tool kit.

Back-up ADS

- 65** For a dive in which an ADS is used, a back-up ADS that meets the requirements of these regulations must be available for deployment at the dive site within 24 hours of a health or safety emergency.

Exiting from lock-out submersible

- 66** A diver must not exit from the SCC of a lock-out submersible underwater unless all of the following requirements are met:
- (a) the lock-out submersible is resting on the bottom or is adequately secured to the underwater work site;
 - (b) the diving supervisor is in the ADS component of the lock-out submersible.

Hoisting device for SCC or ADS

- 67**
- (1) A hoisting device must be available at a dive site to move an SCC or an ADS and the hoisting device must be equipped with a primary lifting cable that permits the safe lowering and raising of the SCC or the ADS
 - (2) A secondary and independent means of recovering the SCC or ADS must be immediately available at a dive site.
 - (3) Except in a health or safety emergency, all directions to the operator of a hoisting device that is used to move an SCC or an ADS, must be given by the diving supervisor .

- (4) A hoisting device that is used to move an SCC that is not a component of a lock-out submersible must be equipped with a safety rope that will stop the SCC in the calm area below the surface that is not affected by the action of the waves if the primary cable breaks during the transfer from water to air or air to water.

Liveboating

Liveboating

- 68 (1) Liveboating must not occur in any of the following circumstances:
- (a) between sunset and sunrise;
 - (b) from a boat or watercraft with inadequate manoeuvrability;
 - (c) when weather or water conditions are unsafe;
 - (d) if in-water decompression procedures are planned;
 - (e) if a dive is planned to depth of greater than 50 m
- (2) A procedure or device must be used when liveboating that prevents a diver's or ADS operator's umbilical bundle from coming in contact with any component of the vessel's propulsion system.
- (3) A vessel used for liveboating must be operated by a competent person.
- (4) The operator of a vessel used for liveboating must
- (a) have a continuous unobstructed view of a diver's tender; and
 - (b) not act as a diving supervisor, stand-by diver, or diver's tender while operating the vessel.

Dynamically Positioned Vessel Dive

Dynamically positioned vessel dive

- 69** (1) A vessel used for a dynamically positioned vessel dive must meet all of the following requirements:
- (a) the vessel must be equipped with more than 1 prime mover for each fore, aft and thwart ship thruster;
 - (b) if a prime mover or maneuvering unit fails, the vessel can maintain its position for the time it takes to safely recover all divers and ADS operators;
 - (c) if 1 of the vessel's thrusters fails or is lost, the arrangement, size and number of thrusters enable the vessel to maintain its heading and position within the vessel's operational capacity limits for the time it takes to safely recover the stage required by clause (3)(a) or ADS used in the dive;
 - (d) the vessel must be equipped with a primary computer system that controls the dynamic positioning of the vessel and a back-up computer system that automatically takes control of the dynamic positioning of the vessel if the primary computer system fails;
 - (e) there must be at least 2 geographic reference systems that are independently linked into each computer system that controls the dynamic positioning of the vessel;

- (f) for each maneuvering unit that is necessary to hold the vessel in position, other than the propellers and energy plant units, there must be a duplicate back-up unit that can be turned on both automatically and manually;
 - (g) there must be a communication system between the control room of the vessel and the dive base.

- (2) A dynamically positioned vessel dive must only be conducted when all of the following conditions are met:
 - (a) the vessel has been held in position through the use of an activated propulsion system for at least 30 minutes before a diver or ADS operator enters the water;
 - (b) the range of surge or sway movement of the water at the dive site must be less than 80% of the maximum operational capacity limit of the vessel;
 - (c) the operator of the vessel has been notified that a dive is about to be conducted.

- (3) All of the following requirements must be met during a dynamically positioned vessel dive:
 - (a) a stage must be positioned as close as possible to the underwater work site;
 - (b) no change of heading or positioning of the vessel takes place until the diving supervisor has given permission for a change of heading or positioning and all divers and ADS operators have been notified;

- (c) at any time a person involved in the dive is in the water
 - (i) the person navigating the vessel and the person controlling the dynamic positioning system are in the control room of the vessel,
 - (ii) the machinery spaces of the vessel are manned, other than machinery spaces designed to flood during normal operations, and
 - (iii) in any 1 manouevre, the vessel must be moved only the lesser of the following:
 - (A) 5 m,
 - (B) a 5° change in heading;
- (d) the person controlling the dynamic positioning system tells the diving supervisor and the operator of the vessel of any difficulties in holding the vessel in position or any other problems that may affect health or safety at the dive site.

- (4) The operator of the vessel used for dynamically positioned vessel diving
 - (a) must have at least 6 months experience using the automatic modes of the dynamic positioning system of the vessel; or

- (b) if the experience required by clause (a) is not reasonably practicable, must have 6 months experience on a similar system and have demonstrated their competence to the employer.
- (5) Divers and ADS operators involved in a dynamically positioned vessel dive must be protected from a health or safety hazard that may be caused by
 - (a) the normal movements of the vessel and any movements caused by unexpected loss of power or stability;
 - (b) any suction or water current encountered or resulting from the operation of the vessel;
 - (c) equipment on the vessel involved in the dive.
- (6) In consultation with the dive team for a dynamically positioned vessel dive, plans must be made that provide for the protection and recovery of divers and ADS operators if the vessel used for the dive loses power.

Diving Hazards

Water flow hazards

- 70** (1) A dive must not be conducted in hazardous water flow conditions.
- (2) Before a dive is conducted, any water flow that may pose a health or safety hazard to a diver or ADS operator must be identified and described to the diver or ADS operator, the diver or ADS operator must be provided with the means to identify the water flow hazard in such a manner as to differentiate it from any other similar water flow hazard in the location, and one of the following must occur:
- (a) the water flow must be stopped at the source and secured by a lock or other inhibiting device;
 - (b) the health and safety of a diver or ADS operator approaching the water flow hazard must be assessed by the determination of flow patterns using measures such as direct measurement or calculation and the water flow must be controlled in a way that
 - (i) ensures that the water flow is not a health or safety hazard to the diver or ADS operator; and
 - (ii) is satisfactory to the diving supervisor and the diver or ADS operator.

Hazardous mechanisms

- 71** (1) Before a dive is conducted, any mechanism that may pose a health or safety hazard to a diver or ADS operator must be

- (a) identified and described to the diver or ADS operator; and
 - (b) locked-out or controlled in a way that
 - (i) ensures that the mechanism is not a health or safety hazard to the diver or ADS operator; and
 - (ii) is satisfactory to the diving supervisor and the diver or ADS operator.
- (2) A dive must not be conducted if a health or safety hazard may be caused by equipment near the dive site, unless the divers and ADS operators are protected from the hazard.

Blasting with explosives at dive site

- 72 A blast from an explosive must not be initiated at a dive site until the diving supervisor
- (a) has determined that it is safe to initiate the blast; and
 - (b) has informed the blaster responsible for initiating the blast that it is safe to initiate the blast.

Low visibility

- 73 During any period of darkness or low visibility at a dive site or underwater work site
- (a) each diver must be provided with a lamp or other suitable device that indicates the diver's position and that attaches to the diver's helmet or mask; and
 - (b) the dive site or underwater work site must be adequately illuminated if the nature of a dive permits.

Weather or water conditions

- 74 Weather and water conditions in the area of a dive or a planned dive must be considered and diving must be suspended if weather or water conditions are hazardous or are likely to become hazardous.

Sonar emissions

- 75 A diver or ADS operator must be protected from health or safety hazards that may be caused by sonar emissions.

Radiation

- 76 A diver or ADS operator must be protected from health or safety hazards that may be caused by a device emitting electromagnetic or ionizing radiation.

Impressed current cathode protection devices

- 77 An impressed current cathode protection device that is within 5 m of an underwater work site must be deactivated and locked-out.

Diving in Contaminated Environments

Application

78 Sections 79 to 82 apply to a dive conducted in a contaminated environments.

Work zones at dive base

- 79** (1) All of the following work zones must be established at a dive base:
- (a) an exclusion work zone, where a diver or ADS operator must exit the water, that is designed and equipped for
 - (i) handling, storing and disposing of contaminants collected during a dive, and
 - (ii) initially decontaminating a diver or ADS operator when the diver or ADS operator exits the water;
 - (b) a contaminant-reduction work zone, where a person must exit the exclusion zone, that must be designed and equipped for
 - (i) decontaminating personnel who have been exposed to a contaminant, and
 - (ii) cleaning equipment that has been exposed to a contaminant; and
 - (c) a support work zone that must be designed and equipped for storing and disposing of equipment that is exposed to a contaminant.
- (2) A work zone must only be used for the purposes that it is designed for.

- (3) A work zone must be clearly marked.
- (4) A person must exit the exclusion work zone only through the contaminant- reduction work zone.
- (5) Only authorized persons may enter a work zone.
- (6) No food, drink or tobacco may be brought into a work zone.

Contaminant management plan

- 80**
- (1) Before a dive is conducted, a written contaminant management plan for the dive must be developed that meets the requirements of this Section.
 - (2) A contaminant management plan must be developed in consultation with
 - (a) the diving supervisor; and
 - (b) the committee or representative, if any.
 - (3) A contaminant management plan must include all of the following:
 - (a) the name of any contaminants that are identified through contaminant testing;
 - (b) a description of the health or safety hazards posed to an employee who may be exposed to an identified contaminant;
 - (c) a description of the protective equipment that must be used or worn by an employee;
 - (d) the locations of the work zones;
 - (e) the procedures to be followed by all persons moving between the work zones;

- (f) the procedures to be followed if someone is exposed to a health or safety hazard resulting from an identified contaminant;
 - (g) the procedures for handling all contaminants that are likely to be encountered.
- (4) A contaminant management plan must be posted at the dive site where the dives are conducted.

Protective equipment to protect against contaminants

- 81** (1) A diver must be equipped with the following protective equipment and a diver must use the following equipment:
- (a) a diving helmet designed for and adequate for the work that is performed;
 - (b) where reasonably practicable, a totally enclosed diving suit that is made of non-absorbent material and that mates to a diving helmet with a positive seal and locking device;
 - (c) protective devices that minimize the exposure of diving equipment to a contaminant.
- (2) A person at the dive site must be equipped with and use adequate apparel and protective devices to prevent exposure to a contaminant.

Diving equipment exposed to contaminant

- 82** (1) Diving equipment that is exposed to a contaminant must be inspected for deterioration and must be adequately cleaned before it is used again.

- (2) Diving equipment that is exposed to a contaminant must be adequately cleaned or must be stored in an adequate receptacle before it is removed from a dive site.

Diving Records

Diver's and ADS operator's logbook

- 83** (1) A diver and an ADS operator must each keep a logbook that
- (a) has the name of the diver or ADS operator written on it;
 - (b) is permanently bound; and
 - (c) has consecutively numbered pages.
- (2) A diver and an ADS operator must keep their logbook at the dive site at all times when they are at the dive site.

Entry in diver's or ADS operator's logbook

- 84** (1) A diver or ADS operator must make and sign an entry in their logbook as soon as reasonably practicable after a dive and before leaving a dive site.
- (2) A diving supervisor must countersign an entry in a diver's or ADS operator's logbook and make note if they disagree.
- (3) An entry in the diver's or ADS operator's logbook must include all of the following:
- (a) the date of the dive;
 - (b) the geographic location of the dive;
 - (c) the name of the diver's employer;
 - (d) the name of the diving supervisor for the dive;
 - (e) if applicable, the name, call number or other unique identifier of any vessel or installation from which the dive was conducted;
 - (f) the type of diving equipment used;
 - (g) the time the dive began;
 - (h) the bottom time of the dive;
 - (i) the duration of the dive;
 - (j) the work performed during the dive;

- (k) the breathing mixture used;
 - (l) the maximum depth of the dive;
 - (m) any decompression table used;
 - (n) any decompression procedure followed;
 - (o) any accident, near miss or unusual incident with the potential to affect health or safety;
 - (p) any discomfort, illness or injury experienced by the diver or ADS operator;
 - (q) any other factor that the diver or ADS operator considers relevant to their health or safety.
- (4) An alteration to an entry in a diver's or ADS operator's logbook must be initialled by the diver or ADS operator and the diving supervisor.
- (5) A diver or ADS operator must produce their logbook for inspection on the request of an officer or a physician performing a medical examination required by Section 12.
- (6) A diver or ADS operator must retain the diver's or ADS operator's logbook for 2 years after the date of the last entry in the logbook.

Diving supervisor's record

- 85** (1) A diving supervisor must keep a diving supervisor's record.
- (2) A diving supervisor's record must include all of the following:
- (a) the name of the diving supervisor;
 - (b) the names of all employers;
 - (c) records of all equipment examinations required by these regulations;

- (d) if used, confirmation of testing of hyperbaric chambers, SCCs and ADSs;
 - (e) an entry for each planned dive or dives conducted by a diver.

- (3) A diving supervisor must make and sign an entry as soon as reasonably practical after each dive.

- (4) An entry in the diving supervisor's record must include all of the following for each planned dive or dives:
 - (a) the date of the dive;
 - (b) the geographic location of the dive;
 - (c) the name of each diver or ADS operator;
 - (d) the names of each standby diver and diver's tender;
 - (e) if applicable, the name, call number or other unique identifier of any vessel or installation from which the dive was conducted;
 - (f) the type of diving equipment used;
 - (g) the weather and water conditions;
 - (h) all underwater work site hazards;
 - (i) a notation indicating whether a dive was conducted in a contaminated environment;
 - (j) the time each diver or ADS operator left the surface;
 - (k) the time each diver or ADS operator arrived at the bottom of the dive;
 - (l) the time each diver or ADS operator left the bottom of the dive;
 - (m) the time each diver or ADS operator re-emerged at the surface;

- (n) the times at which a stage, SCC or ADS used in the dive left the surface;
- (o) the times at which a stage, SCC or ADS used in the dive returned to the surface;
- (p) the work performed and procedures used during the dive;
- (q) the breathing mixtures used;
- (r) the maximum depth of the dive;
- (s) any decompression table used;
- (t) any decompression procedure followed;
- (u) the certificate number of any hyperbaric chamber used and the expiration date of the record of certification;
- (v) any accident, near miss or unusual incident with the potential to affect health or safety;
- (w) any discomfort or illness experienced by a diver or ADS operator;
- (x) any other factor that the diving supervisor considers relevant to the health or safety of the divers or ADS operators.

- (5) If a dive involves a diver or ADS operator repeatedly submerging and returning to the surface without exiting the water, a dive entry must include the information required by clauses (4)(j) to (m) for each time that the diver or ADS operator leaves the surface.
- (6) A diving supervisor must file a signed copy of their diving supervisor's record with each employer within 7 days of the end of a planned dive or dives.

- (7) An employer with whom a diving supervisor's record is filed must retain the diving supervisor's record for at least 2 years after the date for which the last entry was made.

Special Requirements for SCUBA Diving

When SCUBA not permitted

- 86 (1) SCUBA must be not used at construction or industrial underwater work sites that involve any of the following functions:
- (a) welding;
 - (b) burning or cutting;
 - (c) high-pressure jetting;
 - (d) explosives;
 - (e) hoisting;
 - (f) dredging;
 - (g) using power tools;
 - (h) working in a contaminated environment; or
 - (i) liveboating.
- (2) A written code of practice that includes the dive plan required by Section 20 must be adopted and written confirmation from the Director that the code of practice is acceptable to the Director must be obtained before SCUBA is used at construction or industrial underwater work sites involving:
- (a) underwater intakes;
 - (b) entry into pipes or confined spaces;
 - (c) underwater approaches to operating intakes, or exhausts;
 - (d) water control structures;
 - (e) the use of enriched air as breathing mixture.
- (3) The Director may consider, but is not limited to, the following in determining the acceptability of a code of practice required by subsection (2):
- (a) the nature of the work to be performed;
 - (b) the duration of the work to be performed;
 - (c) the training of diving personnel;
 - (d) the risk of diver entrapment;
 - (e) access to the surface;

- (f) potential exposure to a contaminated environment;
- (g) whether or not the use of surface-supplied air would reduce potential adverse effects from the work activity.

Permitted use of SCUBA

- 87 (1) If it is integral to normal operations and the employer has implemented a written code of practice that includes the dive plan required by Section 20 and obtained written confirmation from the Director that the code of practice is acceptable to the Director, SCUBA is permitted to be used at non-construction underwater work sites, non-industrial underwater work sites and commercial seafood harvesting underwater work sites for
- (a) high-pressure jetting;
 - (b) hoisting;
 - (c) using power tools;
 - (d) diving near underwater intakes more than 10 cm in diameter.
- (2) SCUBA is permitted to be used at commercial seafood harvesting underwater work sites for
- (a) diving near underwater intakes less than 10cm in diameter; or
 - (b) diving near pipes less than 10cm in diameter.
- (3) The Director may consider, but is not limited to, the following in determining the acceptability of a code of practice required by subsection (2):
- (a) the nature of the work to be performed;
 - (b) the duration of the work to be performed;
 - (c) the training of diving personnel;
 - (d) the risk of diver entrapment;

- (e) access to the surface;
- (f) potential exposure to a contaminated environment;
- (g) whether or not the use of surface-supplied air would reduce potential adverse effects from the work activity.

Rebreathers

- 88**
- (1) A carbon dioxide absorbent used in a rebreather must be a type recommended by the manufacturer of the rebreather.
 - (2) A carbon dioxide absorbent used in a rebreather must be stored in accordance with the specifications of the manufacturer of the absorbent.
 - (3) A rebreather in which the breathing loops are not sealed must be made up immediately before the dive in which it is used.
 - (4) A rebreather in which the breathing loops are sealed must be made up some time in the 24 hours immediately before the dive in which it is used.

Rebreather hazard training

- 89** A diver who uses a rebreather during a dive must be trained about the health and safety hazards associated with the use of rebreathers, including carbon dioxide poisoning, oxygen toxicity, and hypoxia.

Monitoring of time and depth of SCUBA dives

- 90** The time and depths of all dives must be adequately monitored.

Special Requirements for Surface-Supplied Dives

Helmets and masks

- 91 A diver conducting a surface-supplied dive must wear a helmet or face mask that is all of the following:
- (a) adequate;
 - (b) designed for its intended purpose;
 - (c) fitted with a non-return valve;
 - (d) fitted with an adequate locking or fastening device;
 - (e) attached by a hose to the diver's bail-out system.

Bail-out systems

- 92 (1) A diver conducting a surface-supplied dive must wear a bail-out system that provides a sufficient amount of breathing mixture to enable the diver to safely reach one of the following:
- (a) the surface;
 - (b) the SCC, if an SCC is being used in the dive;
 - (c) the lock-out submersible, if a lock-out submersible is being used in the dive;
 - (d) a location at which breathing mixture can be obtained.
- (2) A bail-out system must not be used to inflate a diving suit.

Breathing mixture supply line

- 93 A breathing mixture supply line used in surface-supplied diving must be all of the following:
- (a) capable of providing a sufficient breathing mixture supply for the circumstances of the dive;
 - (b) free of couplings, other than those required to attach the breathing mixture supply line to
 - (i) the diver or ADS operator; and
 - (ii) the breathing mixture source;

- (c) fitted with a breathing mixture supply valve that is
 - (i) clearly marked to identify the diver or ADS operator whose breathing mixture supply it controls,
 - (ii) under the control of a diver's tender;
 - (iii) protected from interference, and
 - (iv) readily accessible;
- (d) fitted with a pressure gauge that is
 - (i) located downstream of the breathing mixture supply valve, and
 - (ii) positioned so that the gauge's dial and figures are clearly visible to the diver's tender.

Breathing mixture supply line during dive

- 94** During a surface-supplied dive, a breathing mixture supply line used in surface-supplied diving must be protected against damage and kinking

Additional Requirements for Deep Dives

Maintaining decompression stop depths and times

- 95** An adequate stage, or other adequate means must be provided to enable a diver conducting a deep dive to maintain the decompression stop depths and times set out in the dive plan for the dive without undue exertion.

When SCC required for deep dive

- 96** An SCC must be used in any of the following deep dives:
- (a) a deep dive that is conducted in environmental or marine conditions that pose a hazard to the health or safety of a diver or ADS operator;
 - (b) a deep dive in which the maximum depth of the dive is greater than 50 m and the bottom time is longer than 30 minutes;
 - (c) a deep dive in which the maximum depth of the dive is greater than 60 m and the bottom time is longer than 25 minutes;
 - (d) a deep dive in which the maximum depth of the dive is greater than 70 m.

Exposure limits for deep dives

- 97** (1) During a deep dive that has a maximum depth of 150 m or less,
- (a) the diver must spend no longer than 4 hours in the water; and
 - (b) the diver must spend no longer than 10 hours in the SCC.
- (2) During a deep dive that has a maximum depth of more than 150 m,
- (a) the diver must spend no longer than 3 hours in the water; and
 - (b) the diver must spend no longer than 8 hours in the SCC.

Rest period before and between deep dives

- 98** A diver who is conducting a deep dive must have a rest period of at least
- (a) 12 consecutive hours before their first dive; and
 - (b) 12 hours in every 24 hours after their first dive starts.

Restrictions on diving following deep dive

- 99**
- (1) A diver who conducts a deep dive, other than a saturation dive, must not work at a pressure greater than the air pressure at the dive base for 24 hours after the dive.
 - (2) A diver who conducts a saturation dive with a saturation period of shorter than 14 days must not work at a pressure greater than the air pressure at the dive base for 14 days after the dive.
 - (3) A diver who conducts a saturation dive with a saturation period of between 14 and 31 days must not work at a pressure greater than the air pressure at the dive base for a time period equal to the saturation period after the dive.
 - (4) A diver who conducts a saturation dive with a saturation period of more than 31 days must not work at a pressure greater than the air pressure at the dive base for 31 days after the dive.

Back-up power source

- 100** A back-up power source for all powered equipment related to the dive must be available at the dive base for immediate use during a deep dive.

SCUBA and deep dives

101 SCUBA must not be used in a deep dive.