

Draft Regulation

An Act respecting occupational health and safety (R.S.Q., c. S-2.1)

Safety Code for the construction industry

Notice is hereby given, in accordance with sections 10 and 11 of the Regulations Act (R.S.Q., c. R-18.1), that the Regulation to amend the Regulation respecting occupational health and safety and the Safety Code for the construction industry, appearing below, may be made by the Commission de la santé et de la sécurité du travail and submitted to the Government for approval, in accordance with section 224 of the Act respecting occupational health and safety (R.S.Q., c. S-2.1), on the expiry of 45 days following this publication.

The purpose of the draft Regulation is to ensure the health, safety and physical integrity of divers.

To that end, it proposes the addition of new provisions relating to the rules applicable to underwater work, in particular with regard to the training of dive team members, composition and operation of the dive team, required equipment and material, breathing mixture to be used, diving documents, medical monitoring and general and special safety rules to apply.

It also adds special safety rules for certain types of diving, such as diving in a contaminated environment, deep diving, diving in an environment with an obstruction, diving in a restricted access area and ice diving.

Study of the matter has shown little impact on enterprises, including small and medium-sized businesses.

Further information may be obtained by contacting Claude Rochon, Commission de la santé et de la sécurité du travail, 524, rue Bourdages, Québec (Québec) G1K 7E2; telephone: 418 266-4699, extension 2031; fax: 418 266-4698.

Any person wishing to comment on this matter is requested to submit written comments within the 45-day period to Guylaine Rioux, Vice-Chair, Relations with Partners and Consultants, Commission de la santé et de la sécurité du travail, 1199, rue De Bleury, 14^e étage, Montréal (Québec) H3B 3J1.

LUC MEUNIER,
Chair of the Board of Directors and
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Regulation to amend the Regulation respecting occupational health and safety* and the Safety Code for the construction industry**

An Act respecting occupational health and safety (R.S.Q., c. S-2.1, s. 223, 1st par., subpars. 3, 7, 9 to 13, 19, 21.1, 21.5, 41, 42, 2nd and 3rd pars.)

An Act respecting industrial accidents and occupational diseases (R.S.Q., c. A-3.001, s. 454, 1st par., subpar. 4)

1. The Regulation respecting occupational health and safety is amended in section 2 by replacing “and 162 to 165” in the second paragraph by “, 162 to 165 and Division XXVI.1”.

2. Section 4 is amended by replacing “of section 339” by “of sections 312.5 and 339”.

3. The Regulation is amended by inserting the following after section 312:

“DIVISION XXVI.1 UNDERWATER WORK

312.1. Definitions: In this Division,

“area of influence” means a part of a watercourse upstream or downstream from a hydraulic structure or hydroelectric plant that, following a variation in the flow of turbine discharge or discharged water, is subject to current variations that constitute danger for the diver; (*zone d’influence*)

“bottom time” means the time, rounded to the nearest whole minute, comprised between the time the dive begins and the time the diver begins to ascend; (*temps de fond*)

“breathing mixture” means compressed breathing air or a gas mixture containing oxygen in a proportion sufficient to enable the diver to breathe freely without any danger of physiological problems; (*mélange respirable*)

“buddy diving” means any free-swimming scuba diving by a team of 2 divers who ensure each other’s safety; (*plongée en compagnonage*)

“contaminated environment” means a liquid environment containing contaminants within the meaning of the Act respecting occupational health and safety; (*milieu contaminé*)

“decompression accident” means an accident caused by the formation of gas bubbles in the blood and tissues following bad decompression while diving; (*accident de décompression*)

“decompression tables” means the tables indicating the duration of the stops to be complied with in the ascent of a diver according to the characteristics of the dive, such as depth, breathing mixture used and bottom time, in order to reduce the risk of decompression accidents; (*tables de plongée ou de décompression*)

“deep diving” means any diving to depths greater than 40 m; (*plongée profonde*)

“dive time” means the time period comprising the bottom time and the time required to resurface, including decompression time; (*durée de plongée*)

“diving bell” means a vessel linked to the surface, with the bottom open and having, at its top, a dry compartment for the diver; (*cloche de plongée*)

“diving station” means a location on the surface, such as a bank, jetty, floating wharf or boat, large enough to safely hold the dive team and other workers, allow the installation of the required diving equipment and material and ensure the smooth running of the operations; (*poste de plongée*)

* The Regulation respecting occupational health and safety, approved by Order in Council 885-2001 dated 4 July 2001 (2001, G.O. 2, 3888), was last amended by the regulations approved by Order in Council 119-2008 dated 13 February 2008 (2008, G.O. 2, 682) and by Order in Council 510-2008 dated 21 May 2008 (2008, G.O. 2, 2053). For previous amendments, refer to the *Tableau des modifications et Index sommaire*, Québec Official Publisher, 2008, updated to 1 March 2008.

** The Safety Code for the construction industry (R.R.Q., 1981, c. S-2.1, r.6) was last amended by the regulation approved by Order in Council 119-2008 dated 13 February 2008 (2008, G.O. 2, 682). For previous amendments, refer to the *Tableau des modifications et Index sommaire*, Québec Official Publisher, 2008, updated to 1 March 2008.

“environment with an obstruction” means a submerged work area from which a diver cannot be returned to the surface because of an obstacle exerting a resistance when the umbilical is pulled from the surface; (*milieu à obstacle*)

“free-swimming scuba diving” means scuba diving without a lifeline secured to the surface or a buoy; (*en nage libre ou plongée en nage libre*)

“hyperbaric chamber” means a pressure vessel and associated equipment designed to submit a person to pressures greater than atmospheric pressure; (*caisson hyperbare*)

“police diving” means any diving by police divers who are members of a diving unit constituted within a police force in Québec, during an intervention regarding public order and security in accordance with the laws in force, in particular, rescue, safety of sites, or search and recovery of persons or clues linked to a criminal investigation; (*plongée policière*)

“restricted access area” means a submerged work area, such as a tank, from which a diver can only exit or be taken out through a narrow passageway; (*milieu à accès restreint*)

“saturation diving” means any diving consisting in maintaining the diver pressurized in a submersible compression chamber so that the total pressure of inert gases in the diver’s body remains equal to the ambient pressure at the depth of the dive and thus allowing a longer bottom time without lengthening the duration of the decompression; (*plongée à saturation*)

“scientific diving” means any diving to gather specimens or data for scientific purposes, in particular, in archaeology, biology, environment sciences, oceanography, halieutics or microbiology; (*plongée scientifique*)

“scuba diving” means any diving carried out with an open-circuit underwater breathing apparatus attached only to at least 1 cylinder containing a breathing mixture worn by a diver; (*plongée en mode autonome*)

“Service d’assistance médicale pour les urgences en plongée” means the medical assistance service in case of diving emergency designated by the Ministère de la Santé et des Services sociaux;

“site likely to show a pressure differential” means an underwater site where a crack, piping erosion or opening can cause a difference in pressure causing a source of suction for the diver; (*site susceptible de présenter un différentiel de pression*)

“stage” means the equipment used to bring a diver to the point of entry into the water, in particular a cage, submersible compression chamber, platform or diving bell; (*nacelle de plongeur*)

“submersible compression chamber” means a submersible hyperbaric chamber equipped with a variable pressure lock used to lower divers under pressure or bring them up at the atmospheric pressure; (*tourelle*)

“surface-supply diving” means any diving carried out with an open-circuit underwater breathing apparatus attached to an umbilical supplied from the surface with a breathing mixture; (*plongée en mode non autonome*)

“therapeutic recompression” means the treatment received by a diver, usually in a hyperbaric chamber, in accordance with the recognized treatment tables and practices; (*recompression thérapeutique*)

“treatment tables” means the hyperbaric treatment protocols, including the therapeutic recompression profiles used when treating a diver who was the victim of a decompression accident; (*tables de traitement*)

“umbilical” means a bundle of cables and flexible hoses linking a diver to the surface to supply breathing mixture, power and communication. (*ombilical*)

312.2. Scope: This Division applies to any underwater work, except section 312.6, paragraph 5 of section 312.20, section 312.27, paragraph 1 of section 312.86, section 312.87 and paragraph 1 of section 312.91 that do not apply to police diving.

However, this Division does not apply to the teaching and practice of recreational diving that are governed by the Act respecting safety in sports (R.S.Q., c. S-3.1).

§1. General

312.3. Object: The purpose of this Division is to establish standards applicable to underwater work in order to ensure the health, safety and physical integrity of divers and any other workers, in particular with regard to the training of dive team members, composition and operation of the dive team, required equipment and material, breathing mixture to be used, diving documents, medical monitoring and general and special safety standards to apply.

312.4. Employer’s obligations: An employer must in particular ensure that each member of the dive team performs the duties assigned.

In a scientific dive performed by a government agency, educational institution, non-profit research institution or any other non-profit institution, the employer must comply with the provisions of this Division or the Canadian Association for Underwater Science Standard of Practice for Scientific Diving, 3rd Edition, October 1998.

312.5. Diver's obligations: A diver must

(1) inform the diving supervisor of any health condition that may make the diver unfit for diving; and

(2) keep an up-to-date diving logbook and retain it for at least 5 years.

§2. Diving modes

312.6. Diving mode according to work: Surface-supply diving is required for the following:

(1) work performed on a construction site within the meaning of section 1 of the Act respecting occupational health and safety;

(2) welding or cutting;

(3) jetting or suction dredging;

(4) work requiring the use of a lifting device to handle loads underwater;

(5) work requiring the handling or use of explosives;

(6) deep diving work;

(7) work in a contaminated environment requiring the exceptional preventive measures referred to in sections 312.74 to 312.79;

(8) work involving dives with special hazards requiring the safety measures referred to in sections 312.86 to 312.91; and

(9) inspecting submerged structures or infrastructures.

§3. Dive team

312.7. Composition of the dive team: All diving must be performed in teams.

Subject to sections 312.19, 312.76, 312.80, 312.84, paragraph 1 of section 312.86, section 312.87, paragraph 1 of section 312.88, the first paragraph of section 312.89 and paragraph 1 of section 312.91, a dive team must consist of at least 3 divers sharing the duties of diving supervisor, diver, standby diver and diver's tender, according to the following:

(1) the diving supervisor may also act as standby diver or diver's tender; and

(2) the standby diver may also act as diving supervisor but not as diver's tender.

In addition, the dive team includes 2 hyperbaric chamber operators when such a chamber is required.

312.8. Training of dive team members: Within 12 months after (*insert the date of coming into force of this Regulation*), each dive team member, according to the diving mode and the position held, must

(1) receive training in occupational diving according to CSA Standard CSA-Z275.5-05, Occupational Diver Training, and hold a certificate to that effect issued by an educational institution authorized by the Ministère de l'Éducation, du Loisir et du Sport to offer such training or obtain skills recognition from such an institution;

(2) receive, in the case of a dive carried out in a site likely to show a pressure differential, training on the intervention techniques in a situation of pressure differential and hold a certificate to that effect issued by an institution authorized by the Ministère de l'Éducation, du Loisir et du Sport to offer training in occupational diving; or

(3) receive, in the case of police diving, diving training whose program is certified by the École nationale de police du Québec and hold a certificate to that effect or obtain skills recognition.

In addition, at least every 3 years, each dive team member referred to in subparagraph 2 must update his or her knowledge and hold a certificate to that effect issued by an educational institution authorized by the Ministère de l'Éducation, du Loisir et du Sport to offer training in occupational diving.

Subparagraph 2 and the second paragraph apply in the case of police diving. The training must however be certified or approved by the École nationale de police du Québec.

Every person who holds a certificate of training in occupational diving or a certificate to the same effect, depending on the diving mode and the position held, issued by an occupational diving school recognized by the Commission de la santé et de la sécurité du travail before (*insert the date of coming into force of this Regulation*) is exempt from the requirements in subparagraph 1.

312.9. Minimum age: A dive team member must be at least 18 years of age.

312.10. Experience of the diving supervisor: The diving supervisor responsible for underwater work on a construction site must have carried out 100 dives and have at least 1,000 hours of underwater work on a construction site declared to the Commission de la construction du Québec, in accordance with the Act respecting labour relations, vocational training and workforce management in the construction industry (R.S.Q., c. R-20).

312.11. Duties of the diving supervisor: Every dive must be supervised by a diving supervisor who must, in particular,

(1) before performing underwater work upstream or downstream from a hydraulic structure or a hydroelectric plant, communicate with its owner. Section 312.89 applies if the work is performed in the area of influence;

(2) before each dive in seaways or port facilities, notify the authorities concerned;

(3) before each dive, prepare a dive plan that complies with section 312.31, brief the dive team members on the plan, discuss it with them and obtain their agreement;

(4) ensure that the diving equipment and installations comply with those described in this Division and are in good working order;

(5) ensure that each diver wears the required diving equipment, in particular that the standby diver's mask or helmet and suit provide protection equivalent to the underwater diver's mask or helmet and suit, and that it is installed correctly;

(6) ensure that each diver checks his or her equipment once in the water, before starting the dive;

(7) see to the implementation of the dive plan and to the prior setting up of any installation enabling the standby diver to take action quickly and in particular to deal with any emergency;

(8) supervise dive team members;

(9) remain on the surface unless an intervention is required because the safety of a diver is threatened and only after delegating the responsibilities of diving supervisor to a diver on the surface;

(10) designate the dive team member on the surface who is responsible for radio communication with each diver underwater;

(11) prepare and update a register of the dives supervised; and

(12) ensure that any other activity does not endanger the health or safety of the dive team members.

312.12. Duties of the standby diver: The standby diver must

(1) remain on the surface and dive only in case of emergency to help a diver underwater;

(2) ensure that the required diving and communication equipment is ready for use in the environmental conditions surrounding the diver underwater; and

(3) be ready to dive in the environmental conditions surrounding the diver underwater within not more than

(a) 5 minutes for scuba diving; or

(b) 7 minutes for surface-supply diving.

In addition, the standby diver may not assist more than 1 diver at a time, except if the distance separating the standby diver from the divers' entry points does not exceed 30 m.

A scuba diver may not act as a standby diver for a surface-supplied diver.

312.13. Duties of the diver's tender: The diver underwater must always be assisted by a diver's tender who must

(1) constantly monitor the diver's lifeline; and

(2) see to the operation of the breathing mixture supply and distribution system used by the surface-supplied diver.

312.14. Duties of the hyperbaric chamber operator: The hyperbaric chamber operator must

(1) see exclusively to the operation of the hyperbaric chamber; and

(2) be assisted by another member of the dive team if the operator has been diving within the last 6 hours.

312.15. Exclusivity of the duties of the dive team: Dive team members must carry out only the duties assigned to them.

The duties performed on the surface in relation to diving operations must be assumed by workers who are not members of the dive team.

§4. General safety standards

312.16. Lifeline: Subject to section 312.19, a diver must be tethered to the surface by a lifeline.

The lifeline must

(1) be made of cord

(a) of material other than natural fibre or monofilament polypropylene;

(b) at least 12 mm in diameter;

(c) at least 1.5 times the length used underwater;

(d) with a breaking strength greater than 20 kN; and

(e) free of knots and splices, except at the ends where only splices are allowed;

(2) be secured, on the surface,

(a) to an anchorage point that ensures a breaking strength greater than 20 kN, for surface-supply diving, unless that point is a boat that cannot ensure that strength, in which case the cord must be secured to an anchorage point as solid as possible; or

(b) to an anchorage point that ensures a sufficient breaking strength when the lifeline is at its maximum tension, for scuba diving; and

(3) be attached to a diving harness.

In addition, the lifeline must

(a) allow to transmit line signals, pull a diver up or stop a diver's movement underwater; and

(b) protect the air hose and communication cable against tension when it is integrated into an umbilical.

312.17. Lifeline of a standby diver: In addition to the standards listed in section 312.16, the lifeline of a standby diver must be at least 3 m longer than that of the diver underwater.

312.18. Umbilical: The umbilical must be protected against kinking or crushing likely to hinder its operation and free of any intermediate linkage over its entire length.

An umbilical may be used as a lifeline if it was designed for that purpose. If not, a lifeline must be integrated to protect the umbilical against any tension.

312.19. Free-swimming scuba diving: If a diver's lifeline could get stuck or tangled, the diving supervisor, when another work method cannot be used, may authorize free-swimming scuba diving, on the condition that an accompanying diver secured to the surface by a lifeline goes underwater and maintains permanent visual contact with the free-swimming diver. The accompanying diver is added to the dive team referred to in section 312.7.

If the lifeline of the accompanying diver could also get stuck or tangled, the diving supervisor may authorize the 2 divers to buddy dive in accordance with section 312.20.

312.20. Buddy diving: While buddy diving, the divers must

(1) establish a communication code by hand signals to be used in case of emergency or failure of the voice communication system;

(2) maintain constant visual contact with each other during the entire dive;

(3) terminate the dive immediately if 1 of the divers begins to ascend;

(4) apply the emergency measures in the dive plan if 1 of the divers does not respond to a signal; and

(5) be tethered to the surface by a cord attached to a buoy, which must be constantly visible and monitored so that immediate help may be provided to the divers in case of emergency.

312.21. Decompression tables: Except in saturation diving, dives, ascents and rest periods must comply with the decompression tables of the Defence and Civil Institute of Environmental Medicine of the Department of National Defence of Canada corresponding to the breathing mixture used, as they read at the time they apply.

Except in case of emergency, a diver must never be in a situation of undue exposure defined in those tables.

312.22. Communication system by line signals: Except in the case of a buddy dive in accordance with section 312.20, a 2-way communication system by line signals must be established for each dive so that

(1) a diver may immediately obtain help from the dive team members on the surface, if needed; and

(2) the dive team on the surface may, at any time, call a diver back to the surface.

312.23. Voice communication system: In addition to the system referred to in section 312.22, a 2-way voice communication system between the diver underwater and the dive team members on the surface must be used for all dives

- (1) that are surface-supplied;
- (2) with a buddy and free-swimming;
- (3) at the end of submerged pipes;
- (4) in an environment with an obstruction;
- (5) in a restricted access area;
- (6) under ice;
- (7) in a contaminated environment; and
- (8) to a depth of more than 40 m in the case of a police dive when the location does not allow the transportation of a hyperbaric chamber to the diving station.

During a dive to a depth of more than 50 m, the 2-way voice communication between the diver and the surface must be recorded for the entire dive. The recording must be kept for at least 48 hours.

A dive must be interrupted if the 2-way voice communication system should fail.

312.24. Features of the voice communication system: The communication system referred to in section 312.23 must

- (1) have a transmission quality that allows the diver's breathing to be clearly heard; and
- (2) be equipped with a voice unscrambler if a gas mixture containing helium or other sound-distorting gas is used.

312.25. Dive time: The sum of a diver's dive times must never exceed 4 hours per 24-hour period.

312.26. Signalling: Any underwater work in navigational waters must be signalled in accordance with the Collision Regulations (C.R.C., c. 1416) and the Private Buoy Regulations (SOR/99-335).

When a diver is in the water, no boat or other floating equipment in the work area may be moved without the authorization of the diving supervisor.

312.27. Current: When the current at the underwater workstation where the diver must perform duties is over 1 knot, a current deflector must be used to reduce the current to not more than 1 knot. The deflector manufacturing and installation drawings must be approved by an engineer and be available at the dive site.

If it is impossible to use a deflector, another means ensuring equivalent safety must be approved by an engineer.

312.28. Handling and use of explosives: Any work requiring the handling or use of explosives underwater must be carried out in accordance with Division IV of the Safety Code for the construction industry (R.R.Q., 1981, c. S-2.1, r. 6), except subdivision 4.2 in the case of a police dive.

In addition, the lead wire must not be attached to the detonator before all divers have moved at least 800 m away from the explosion site on the water or have taken shelter on shore.

312.29. Underwater welding and cutting: Any underwater welding or cutting, as well as the installation, handling and maintenance of equipment required to that effect, must be carried out in accordance with Clause 9.5 of CSA Standard CAN/CSA W117.2-01, Safety in Welding, Cutting and Allied Processes, except Clause 9.5.3.3.

312.30. Protection against electrical hazards: Electric voltage of devices, equipment and tools used underwater must not exceed 110 volts in direct current or 42 volts in alternating current.

Those devices, equipment and tools must be

- (1) insulated;
- (2) equipped with a shut-off switch;
- (3) equipped with a ground fault detector if the power supply is alternating current from the public network or its equivalent; and
- (4) grounded, in the case of equipment.

§5. Diving documents

312.31. Dive plan: The dive plan that must be prepared by the diving supervisor in accordance with section 312.11 must include at least the following items:

- (1) the description of the dive sites, seabed characteristics and the nature of the work to be carried out;

- (2) the depth and duration of the dive;
- (3) the current velocity and, if applicable, the preventive measures to be taken to eliminate the risk of drifting;
- (4) the diving mode prescribed and the required equipment and material, including the nature and quantity of the breathing mixture used;
- (5) the identification of the hazards and the preventive measures to be taken to eliminate or control them;
- (6) the preventive measures in a contaminated environment and whether they are general or exceptional;
- (7) the duties assigned to each member of the dive team;
- (8) the establishment of a code for communication and recall to the surface by line signals;
- (9) the measures to be taken in case of emergency, such as communication failure between the surface and a diver, equipment failure or poor environmental conditions, such as wind, bad weather, currents, waves, bad visibility and contaminants; those measures must include an underwater rescue simulation at every dive site, including a site likely to show a pressure differential, and when 50% or more of the dive team is replaced;
- (10) the evacuation and transportation methods for an injured diver, in particular, air transport, if applicable;
- (11) the contact information of the medical services to contact in case of decompression accident or other, particularly the contact information of the Service d'assistance médicale pour les urgences en plongée; and
- (12) the contact information of the administrative authorities concerned by the underwater work, such as the police, the port authority and the authorities in charge of the navigational waters, water intakes, water purification plants and hydraulic structures.

312.32. Diving logbook: The diving logbook that must be prepared by the diving supervisor in accordance with section 312.11 must include, for each dive supervised, a record containing the information referred to in the second paragraph of section 312.33.

The logbook must be retained by the employer for at least 5 years.

312.33. Diver's logbook: The logbook kept by each diver in accordance with section 312.5 must contain the following information and documents:

- (1) the diver's name, address and date of birth;
- (2) the training certificates or recognition referred to in sections 312.8 and 312.60; and
- (3) the medical certificate referred to in section 312.57.

In addition, the diver must enter the following information in the logbook after each dive:

- (1) the name of the employer for which the dive was performed;
- (2) the description of the work;
- (3) the date and time of the dive;
- (4) the diving devices and breathing mixture used;
- (5) the maximum depth reached during the dive;
- (6) the dive time;
- (7) the bottom time;
- (8) the water temperature;
- (9) the time of ascent and arrival on the surface;
- (10) the interval between successive dives;
- (11) in the case of a dive from a submerged or pressure vessel, the depth of that vessel as well as its time of arrival and departure; and
- (12) any other relevant information, such as weather conditions, currents, emergency simulation, use of a therapeutic recompression or hyperbaric exposure and the protocol carried out.

The diver's logbook must be available at all times at the diving station.

312.34. Maintenance logbook: Maintenance information on the diving equipment and material, including the breathing mixture supply system, such as a description of the location and the material maintained, the date of the maintenance as well as the name of the person doing the work, must be recorded in a logbook.

The logbook must be retained by the employer for at least 5 years.

§6. Equipment and material

312.35. Scuba diving equipment: The use of the following minimum equipment is compulsory for any scuba diving:

- (1) an open-circuit underwater breathing apparatus attached to at least 1 cylinder containing a breathing mixture and equipped with a demand regulator;
- (2) a submersible pressure gauge;
- (3) an emergency self-contained breathing apparatus;
- (4) subject to section 312.37 and paragraph 2 of section 312.69, a wet suit appropriate to the work conditions;
- (5) a diving mask;
- (6) an inflatable buoyancy compensator;
- (7) a pair of swim fins;
- (8) a harness, designed for diving by a manufacturer, with pelvic support and at least 2 attachment points, including 1 dorsal point, with a breaking strength greater than 20 kN and that are accessible and visible when the diver is dressed and equipped;
- (9) a releasable weight belt equipped with a quick-release buckle or ballasting system;
- (10) a depth gauge;
- (11) a knife suitable for the work; and
- (12) a light and a rescue or stroboscopic beacon for night diving.

312.36. Surface-supply diving equipment: The use of the following equipment is compulsory for any surface-supply diving:

- (1) a surface-supplied underwater breathing apparatus including a helmet or a full face mask equipped with a continuous or demand regulator, in addition to protective headgear;
- (2) an umbilical;
- (3) an emergency self-contained breathing apparatus attached to the appropriate accessories, with a regulator equipped with a shut-off valve and a submersible pressure gauge;

(4) subject to section 312.37 and paragraphs 2 of sections 312.69 and 312.78, a wet suit suitable for the work conditions;

- (5) non-releasable ballast;
- (6) a depth gauge or pneumo depth gauge for deep diving;
- (7) a harness, designed for diving by a manufacturer, with pelvic support and at least 5 attachment points, including 1 dorsal point accessible to the diver using an extension of at least 20 kN, having the following features:
 - (a) a breaking strength greater than 20 kN;
 - (b) they are accessible and visible by the standby diver when the diver is dressed and equipped;
- (8) a suitable knife;
- (9) a pair of swim fins and, for bottom work, safety boots especially designed to protect against the risks of puncture or the fall of heavy or sharp objects; and
- (10) a light for night diving.

312.37. Thermal protection when diving: Diving in water whose temperature is higher than 40°C is prohibited.

A diver must wear a controlled temperature suit in the following cases:

- (1) when diving in water between 35°C and 40°C for more than 15 minutes; and
- (2) when diving in water at 5°C or colder for more than 90 minutes.

A diver must wear a variable volume dry suit in the following cases:

- (1) when diving in water at 14°C or colder for more than 15 minutes; and
- (2) when diving in water at 5°C or colder for 90 minutes or less.

The heating or cooling unit used to warm up or cool down the controlled temperature suit must be equipped with a temperature control and a hot or cold water reserve, as the case may be, to warm up or cool down the suit for the time required by the diver's ascent in case of failure of the heating or cooling unit.

A diver must wear a wet suit under the diving suit in the cases referred to in subparagraphs 1 and 2 of the first paragraph.

312.38. Diving station and required material: All dives require the installation of a diving station that must include at least the following material:

(1) a weighted descent line, at least 12 mm in diameter and long enough to reach the bottom at the maximum depth of the underwater workstation, that must be used in particular to guide the diver during descent and ascent; if such a line cannot be used, any other appropriate means to guide the diver, taking into account the depth and diving conditions;

(2) a bottom timer and clock;

(3) a copy of the decompression tables of the Defence and Civil Institute of Environmental Medicine of the Department of National Defence of Canada, as they read at the time they apply;

(4) a copy of the standards referred to in this Division; and

(5) in addition to the equipment required in accordance with the First-aid Minimum Standards Regulation, approved by Order in Council 1922-84 dated 22 August 1984, an oxygen inhalation kit containing at least the items described in Part 1 of Schedule X and, if applicable, enough oxygen to be administered to a diver who was the victim of an accident until the diver enters the hyperbaric chamber or until medical attendants are able to administer oxygen to the diver.

312.39. Stage: A stage must be used to move divers to the entry point into the water if the diving station is more than 2 m above water.

The stage must

(1) be built to prevent tipping or spinning;

(2) have a floor surface of at least 0.83 m²; and

(3) be able to support the weight of at least 2 divers with their diving equipment.

If the stage is a cage, submersible compression chamber, platform or diving bell, it must meet, in addition to the requirements referred to in the second paragraph, the requirements referred to in paragraph 3 of section 3.10.7 of the Safety Code for the construction industry, except subparagraph *d* of that paragraph.

If the entry point into the water is 2 m or less from the water surface and there is no stage, a ladder must be available to the divers.

When the site's configuration does not allow for a stage to be used, another means providing equivalent safety may be used to move the diver to the entry point. The drawings of the means must be prepared by an engineer and available at the diving station.

312.40. Hoisting of a stage: A stage must be hoisted using a crane, boom truck or device designed for lifting a worker according to the following conditions:

(1) the crane or boom truck must comply with the requirements in subparagraphs *d* and *e* of paragraph 2 and paragraph 4 of section 3.10.7 of the Safety Code for the construction industry, as it reads at the time it applies; and

(2) the device designed for lifting a worker must

(a) comply with the requirements in paragraph 1 of section 3.10.7 of the Safety Code for the construction industry, as it reads at the time it applies; and

(b) be the subject of drawings, including the installation and disassembly processes, signed and sealed by an engineer and available at the diving station.

The crane, boom truck or device referred to in the first paragraph must be available at all times to move divers. The crane, boom truck or device may not be used for other purposes while divers are still in the water.

Only dive team members may give instructions to the operator of the crane, boom truck or device referred to in the first paragraph. The operator must be linked to the dive team members' 2-way voice communication system when such a system is required.

312.41. Booster power supply: In case of main power source failure, another power source must be turned on rapidly to maintain the operation of all diving devices and equipment required to return a diver to the surface.

§7. Breathing mixture

312.42. Compressed breathing air: The compressed breathing air must comply with section 48.

312.43. Gas mixture: The gas mixture used in a breathing mixture must meet the following requirements:

- (1) the gases must be at least 99.5% pure;
- (2) the proportion of oxygen, nitrogen, helium and any other gas present in the mixture must comply with the decompression tables of the Defence and Civil Institute of Environmental Medicine of the Department of National Defence of Canada, as they read at the time they apply;
- (3) the concentration of contaminants in the mixture must not exceed the maximum concentration provided for in Part 2 of Schedule X;
- (4) the concentration of contaminants other than those provided for in Schedule II must not reach the odour threshold or exceed 1/25 of the time-weighted average exposure values provided for in Part 1 of Schedule I;
- (5) the particles must not exceed 0.3 micrometers; and
- (6) the mixture must be odourless.

312.44. Pure oxygen: No submerged diver may breathe pure oxygen at a depth exceeding 7.6 m, except for decompression or therapeutic purposes.

The oxygen used must be 99.5% pure and meet the requirements of paragraphs 3 to 6 of section 312.43.

312.45. Dew point: The dew point of the breathing mixture must be at least 5°C lower than the lowest temperature to which the supply system or 1 of its components is exposed.

§8. Supply system

312.46. Composition of the supply system: The system must supply the breathing mixture to the diver at the required temperature, pressure and rate.

The system must include the following components:

- (1) a main supply capable of supplying the required quantity of breathing mixture for the entire dive;
- (2) an auxiliary breathing mixture reserve at the diving station; and
- (3) an emergency self-contained breathing apparatus with sufficient breathing mixture reserve to allow the diver to resurface or re-enter a diving bell or another

submersible chamber in case of emergency; the apparatus must contain the following minimum quantities:

(a) for surface-supply diving

- i. to a depth equal to or less than 15 m, 1,415 l at a minimum nominal pressure of 70%; and
- ii. to a depth greater than 15 m, under ice, in an environment with an obstruction or in a submerged pipe, 2,265 l at a minimum nominal pressure of 70%;

(b) for scuba diving

- i. to a depth equal to or less than 15 m, 368 l; and
- ii. to a depth greater than 15 m, 850 l.

Each component of the supply system must operate independently. An interruption of the main supply must not prevent supply from the auxiliary reserve or the emergency self-contained breathing apparatus.

312.47. Auxiliary reserve: The auxiliary reserve referred to in subparagraph 2 of the second paragraph of section 312.46 must include,

(1) for scuba diving, a complete diving breathing apparatus, including a half mask and a full cylinder, for each diver underwater;

(2) for surface-supply diving, a breathing mixture reserve equal to 2.5 times the required quantity to allow each diver to ascend and undergo decompression; and

(3) if a submersible compression chamber is used, a breathing mixture reserve that would allow the underwater work to be extended for 72 hours.

312.48. Compressed breathing air supply system: The compressed breathing air supply system and its components must meet the requirements of section 48.

312.49. Gas mixture supply system: The gas mixture supply system and its components must

- (1) be designed and manufactured for their intended use;
- (2) be maintained in accordance with the manufacturer's instructions, taking into account the conditions and depths in which they are used;
- (3) be repaired and tested in accordance with the manufacturer's instructions;

(4) be protected against freezing due to the low temperature of the water or ambient air or the expansion of a gas;

(5) include a mixture heater, if the gas mixture includes helium; and

(6) not be modified unless that modification is approved in writing by the manufacturer.

312.50. Lines: Each line of the breathing mixture or oxygen supply system must

(1) be designed for its intended use and clearly identified to the diver supplied;

(2) include an easy-to-reach shockproof supply valve; and

(3) be equipped with a pressure gauge, downstream from the supply valve, indicating the supply pressure of the breathing mixture or oxygen, with a dial and numbers easily readable by the diver's tender.

The use of flexible hoses in an oxygen supply line is prohibited, except if the high speed flow of the oxygen in the flexible hose does not create a differential pressure greater than 700 kPa from one end of the hose to the other.

The use of quick-opening valves in an oxygen supply line is also prohibited, except if emergency stop valves are located at the point where the line goes through the hull of a hyperbaric chamber.

For the purposes of this section, "lines" means the rigid and flexible hoses and fittings of the breathing mixture or oxygen supply and distribution system.

312.51. Breathing mixture cylinder: Every breathing mixture cylinder must be submitted to a hydrostatic test and maintained and stored in accordance with CSA Standard Z94.4-93, Selection, Use and Care of Respirators.

312.52. Mask, helmet and regulator: Every mask, helmet and regulator must

(1) be used and maintained in accordance with the manufacturer's instructions; and

(2) be cleaned and disinfected in accordance with Clause 10.2 and Annex F to CSA Standard Z94.4-93, Selection, Use and Care of Respirators.

312.53. Check valve: A surface-supplied diver's helmet and mask must be equipped with a check valve that must be checked before each dive.

312.54. Pressure gauge: The use of a defective pressure gauge is prohibited. A pressure gauge that cannot be repaired must be destroyed.

A pressure gauge must be checked at least every 6 months, unless the manufacturer has given instructions to the contrary.

312.55. Compressor: Every low pressure compressor must

(1) operate automatically and discharge the breathing mixture in an air cylinder having a sufficient volume to avoid excessive pressure variations;

(2) supply and maintain a breathing mixture supply corresponding to twice the required air flow, at a pressure 25% greater than the maximum pressure required;

(3) have a purification system that complies with Annex D to Standard CAN3-Z180.1 M85, Compressed Breathing Air and Systems; and

(4) be used with cylinders, devices and fittings that comply with CSA Standard CSAB51-M1991, Boiler, Pressure Vessel and Piping Code.

A high pressure compressor, 70.3 kg/cm² or more, must not be used to directly supply a surface-supplied diver.

§9. Medical monitoring

312.56. Competence of the diving physician: A diving physician must comply with CSA Standard CAN/CSA Z275.4-02, Competency Standard for Diving Operations. The physician must

(1) have the basic training in Level I diving medicine provided for in the standard, in order to detect the symptoms of exposure to undue pressures and examine a diver's state of health; and

(2) have the advance training in Level II diving medicine provided for in the standard, in order to treat in a hyperbaric chamber a diver who was the victim of a decompression accident and supervise at a distance a chamber operator during that treatment.

312.57. Medical examination and certificate: Every 2 years, divers must undergo a physical examination by a diving physician or more often if the physician deems

it necessary and obtain a medical certificate attesting that they are fit to dive. The medical certificate is valid for a maximum of 2 years.

The diving supervisor may also require that a diver again undergo the physical examination referred to in the first paragraph and obtain a new medical certificate, if the supervisor considers that the diver is unfit to dive safely.

312.58. Contents of the medical certificate: The medical certificate must indicate

- (1) the name of the diver;
- (2) the date of the physical examination and the expiry date of the medical certificate;
- (3) whether the diver's health allows the diver to dive in the required mode;
- (4) any restriction regarding the diver's health likely to limit diving activities; and
- (5) the name and address of the diving physician who issued the certificate.

The certificate must be attached to the diver's logbook.

312.59. Medical alert bracelet or tag: Every diver must wear a medical alert bracelet or tag for at least 24 hours after a dive. The following information must be engraved on the bracelet or tag:

- (1) the words "professional diver"; and
- (2) the telephone number of the Service d'assistance médicale pour les urgences en plongée.

312.60. First-aid attendants: Every dive team member must

- (1) be trained in occupational first-aid including a component dealing with near-drowning and hold a certificate to that effect; and
- (2) attend a 4-hour training course on the administration of oxygen to a diver victim of an accident and on the use and maintenance of the oxygen inhalation kit required in section 312.38 and hold a certificate to that effect.

Those certificates must be issued by an institution recognized by the Commission de la santé et de la sécurité du travail, be renewed every 3 years and be attached to the diver's logbook or be available on request.

312.61. Communication with the Service d'assistance médicale pour les urgences en plongée: A communication system with the Service d'assistance médicale pour les urgences en plongée must be available at all times at the diving station so that any diver who is injured or was the victim of a decompression accident may receive the required medical supervision.

312.62. Air transport of a diver: When transporting by air a diver who was the victim of a decompression accident, the cabin pressure must not be lower than the pressure at an altitude of 300 m from the diving station and in-flight conditions must be established by the Service d'assistance médicale pour les urgences en plongée.

312.63. Decompression accident: If a diver is the victim of a decompression accident, the hyperbaric chamber operator must initiate the treatment of the decompression accident victim in the chamber.

The operator must also communicate as soon as possible with the Service d'assistance médicale pour les urgences en plongée so that the treatment may be continued under the supervision of a diving physician.

Before diving again, the diver must obtain a medical report attesting that the diver is fit to dive.

312.64. Hyperbaric chamber and chamber medical kit: Subject to section 312.65, a Class A hyperbaric chamber built, used and maintained in accordance with CAN/CSA Standard Z275.1-05, Hyperbaric Facilities, except Clauses 8 and 14, as well as a chamber medical kit with the basic content described in Part 3 of Schedule X, must be available at all times at the diving station in the following cases:

- (1) the dive exceeds the no-decompression limit; or
- (2) the dive depth exceeds 40 m, or 15 m for the work provided for in section 312.6.

The chamber and kit are for the divers' exclusive use. They must be kept in good condition.

For the purposes of this section, "no-decompression limit" means the bottom time that, according to the decompression tables, does not require any decompression stop because of dive depth and duration.

312.65. Special measures concerning the hyperbaric chamber: The following measures must be taken when

a police dive is carried out in a location not accessible by land or in any other location where a hyperbaric chamber cannot be transported to the diving station:

- (1) air transport must be available on the site;
- (2) a satellite telephone must be available, if needed; and
- (3) prior to the dive, communication must be established with the nearest hospital equipped with a hyperbaric chamber in order to ensure its availability in case of emergency.

§10. Special safety standards

312.66. Applicable provisions: The other provisions of this Division apply, with the necessary modifications, to the following types of dive.

§11. General preventive measures for diving in a contaminated environment

312.67. General preventive measures: The general preventive measures described in sections 312.68 to 312.73 apply to a dive in a contaminated environment as a result of industrial, agricultural or water purification activities.

312.68. Additional preventive measures in the dive plan: In addition to the items referred to in section 312.31, the dive plan must refer to

- (1) the protective clothing and respiratory equipment that the workers other than divers must use, if applicable;
- (2) the required material and decontamination and cleaning measures for the divers and other workers and their equipment;
- (3) a depot for contaminated clothing and equipment; and
- (4) the measures to be taken in case of intoxication, including the nature of the first-aid to be given and the telephone numbers of the Centre antipoison du Québec and the Service du répertoire toxicologique of the Commission de la santé et de la sécurité du travail.

312.69. Diving equipment: In addition to the equipment referred to in sections 312.35 and 312.36, except paragraph 4, the following equipment must be worn:

- (1) a positive pressure full face mask;

- (2) a dry suit; and
- (3) a pair of watertight gloves.

312.70. Equipment and installation maintenance: Before each dive in a contaminated environment, the equipment and the installation must

- (1) be inspected to detect any wear;
- (2) be decontaminated before being used; and
- (3) be destroyed if they cannot be decontaminated.

312.71. Safety instructions: In the surface work area, the following safety instructions must be followed:

- (1) access to the work area is restricted to authorized persons only;
- (2) no food, drink or tobacco product may be brought into that area; however, drinking water protected from contamination must be available to prevent dehydration; and
- (3) the workers and their equipment must be decontaminated or cleaned before leaving the work area.

312.72. Vaccination: Any diver working in a contaminated environment must be provided free of charge with vaccines against polio, tetanus, hepatitis A and any other vaccine prescribed by a diving physician.

312.73. Medical certificate: Any diver contaminated after diving in a contaminated environment must undergo a physical examination by a diving physician and obtain a medical certificate attesting that the diver is fit to dive again.

§12. Exceptional preventive measures for diving in a contaminated environment

312.74. Exceptional preventive measures: In addition to the general preventive measures referred to in sections 312.68 to 312.73, the exceptional preventive measures prescribed in sections 312.75 to 312.79 apply to any dive operation in a contaminated environment conducted in one of the following locations:

- (1) at the discharge point or in the vicinity of the discharge point of effluents from an industrial plant, a water treatment or wastewater purification station;
- (2) in the vicinity of a chemical, biological or radioactive pollutant spill; or

(3) in a nuclear plant.

Likewise, the measures apply if sediments containing contaminants are moved with equipment resulting in their suspension at the underwater workstation.

312.75. Identification of contaminants: The following information must be available in writing at the diving station before the dive operation and handed over to the dive team:

(1) the identification and concentration level of contaminants present on the surface and at the underwater workstation;

(2) the health and safety risks that the contaminants represent for the workers; and

(3) the material safety data sheet provided for in section 62.3 of the Act respecting occupational health and safety if the contaminants are controlled products.

If the concentration level of contaminants may not be established before the dive, the preventive measures in a contaminated environment in sections 312.76 to 312.79 must nevertheless be complied with.

312.76. Composition of the dive team: The dive team must consist of at least 4 divers, including 1 diving supervisor, 1 diver, 1 standby diver and 1 diver's tender.

312.77. Surface-supply diving: Surface-supply diving is compulsory.

312.78. Diving equipment: In addition to the equipment referred to in section 312.36, except paragraph 4, the following equipment must be worn:

(1) a surface-supply diving helmet suitable for working in a contaminated environment; and

(2) a diving suit, made of non-absorbing material, resistant to the contaminants present, to which the diving helmet is attached by a positive seal and lock device.

312.79. Delimitation of the work areas: The exclusion, decontamination and support areas must be delimited.

The limits of each area must be clearly defined and marked and the following instructions must be followed:

(1) only workers wearing the required protective clothing and respiratory equipment may enter the exclusion area; and

(2) when leaving the exclusion area, the divers and their equipment must exit through the decontamination area to be cleaned and decontaminated.

For the purposes of this section,

(1) "exclusion area" means the area in the contaminated environment where the dive is performed;

(2) "decontamination area" means the area used for decontaminating divers and their equipment; and

(3) "support area" means the area outside the contaminated environment intended for the management, monitoring and technical and medical support operations of the underwater work.

§13. Deep diving

312.80. Composition of the dive team: Subject to section 312.84, when deep diving, the dive team must consist of at least 5 divers, including 1 diving supervisor, 1 diver, 2 diver's tenders and 1 standby diver.

312.81. Equipment: The following equipment is compulsory for any deep dive to lower divers to their underwater workstation and return them to the surface:

(1) a descent line, stage or any other suitable equipment allowing the diver to stop at the various levels in the decompression tables, as they read at the time they apply, if the depth of the dive does not exceed 50 m;

(2) a diving bell or submersible compression chamber, if the depth of the dive is between 50 m and 80 m; and

(3) a submersible compression chamber, if the depth of the dive exceeds 80 m.

The submersible compression chamber referred to in subparagraphs 2 and 3 must comply with CSA Standard Z275.1-05, Hyperbaric Facilities, except Clauses 8 and 14.

The diver's umbilical exiting the diving bell or submersible compression chamber must not exceed the distance that can be covered by the diver's emergency self-contained breathing apparatus to re-enter the diving bell or the submersible compression chamber.

312.82. Breathing mixture: Compressed breathing air is prohibited if the depth of the dive exceeds 50 m.

312.83. Communication system: For any deep diving, a 2-way voice communication system must be available to the standby diver in the submersible compression chamber to allow communication with the diver underwater, outside the submersible compression chamber, as well as with the dive team members on the surface.

§14. Diving in a submersible compression chamber

312.84. Composition of the dive team: For diving in a submersible compression chamber, the dive team must consist of at least 5 divers, including 1 diver and 1 standby diver in the chamber, 1 diving supervisor, 1 diver and 1 diver's tender on the surface and the required personnel on the surface to place the submersible compression chamber in the water and ensure adequate operation of the chamber and the chamber system.

The standby diver in the submersible compression chamber also acts as tender.

312.85. Equipment and communication system: The second and third paragraphs of section 312.81 and section 312.83 apply to any dive in a submersible compression chamber.

§15. Other dives with special hazards

312.86. Diving near a submerged pipe intake or discharge or inside the pipe: When diving near a submerged pipe intake or discharge or inside the pipe or another submerged installation, such as a wasteway or wastewater spillway, the water flow must be completely controlled and the following safety standards must be complied with:

(1) the dive team must consist of at least 4 divers, including 1 diver, 1 standby diver and 2 diver's tenders, 1 of whom is the diving supervisor;

(2) every pipe end must be located and the end where the dive is carried out must be clearly identified;

(3) the power source or circuit of any machine or mechanism controlling the flow or that may represent a safety risk for the divers must be locked in accordance with section 185, except the reference that is made to section 186;

(4) a diver may not enter a submerged pipe or other installation if its diameter is smaller than 1 m and turning inside is difficult; and

(5) a diver may not proceed further than 100 m inside a submerged pipe or other installation.

312.87. Diving in an environment with an obstruction: When diving in an environment with an obstruction, the dive team must consist of at least 6 divers, including 2 divers underwater to allow 1 diver to lead the other diver's umbilical to the location where an obstacle exerts a resistance when the umbilical is pulled on, 3 diver's tenders and 1 standby diver on the surface, 1 of whom is the diving supervisor.

312.88. Diving in a restricted access area: Divers must comply with the following safety standards when diving in a restricted access area:

(1) the dive team must consist of at least 4 divers, including 1 diver, 1 standby diver and 2 diver's tenders, 1 of whom is the diving supervisor;

(2) the diver's tender who is not acting as diving supervisor must always be able to pull directly on the umbilical to return the diver to the surface, if required;

(3) the water flow must be completely controlled; and

(4) a diver lifting device meeting the requirements provided for in section 312.40 must be available on the surface, except if a diver is within easy reach.

312.89. Diving in an area of influence: When diving in an area of influence, the diving team must consist of at least 4 divers, including 1 diver, 1 standby diver and 2 diver's tenders, 1 of whom is the diving supervisor.

The diving operation referred to in the first paragraph may be performed if the employer has agreed with the owner of a hydraulic structure or a hydroelectric plant that measures to control the flow of turbine discharge or discharged water must be planned and implemented before beginning the work and maintained until the work is completed in order to ensure stability in the current at the dive site. A copy of the agreement must be available at the diving station.

312.90. Inspection dive at a site likely to show a pressure differential: Before performing work underwater at a site likely to show a pressure differential, the underwater work area and a width of at least 5 m in the surrounding of the area must be inspected in order to detect any source of suction and eliminate it, if applicable, if it constitutes a danger for the diver.

In addition, the following safety standards must be complied with:

(1) the diver must be lowered underwater so as to progressively go near the area to inspect; and

(2) the diver must be lowered underwater in one of the following manners:

(a) in a cage that complies with section 312.39 and hoisted according to section 312.40; or

(b) attached by a dorsal lifting ring or link to a cable, other than the lifeline, with a breaking strength greater than 20 kN and linked to a locking device.

312.91. Ice diving: The following safety standards must be complied with when ice diving:

(1) the dive team must consist of at least 4 divers, including 1 diver, 1 standby diver and 2 diver's tenders, 1 of whom is the diving supervisor;

(2) no diver may go under the ice more than 50 m from the point of entry into the water;

(3) the bearing capacity of the ice must be evaluated;

(4) the hole made in the ice must

(a) be triangular;

(b) allow the passage of 2 divers; and

(c) have a perimeter visibly defined; and

(5) the piece of ice taken from the hole must be

(a) removed from the water to avoid forming an obstacle or binding the lifeline; and

(b) put back into place after the dive.”.

4. Section 1.1 of the Safety Code for the construction industry (R.S.Q., 1981, c. S-2.1, r.6) is amended by replacing subparagraph *e* of paragraph 8 by the following:

“(e) where work is carried out underwater or in a hyperbaric environment;”.

5. Section 3.17 of the Code and Schedule I are revoked.

6. This Regulation comes into force on the fifteenth day following the date of its publication in the *Gazette officielle du Québec*.

SCHEDULE X

Part 1

(s. 312.38)

Basic content of an oxygen inhalation kit

The oxygen inhalation kit must contain at least the following:

- 1 type D oxygen cylinder (450 l) at a pressure between 2,000 and 2,200 psig
- 1 regulator compatible with the oxygen cylinder valve, equipped with a high pressure gauge and a flowmeter
- 1 pocket mask
- 1 Ambu manual resuscitator
- 1 demand regulator
- 1 high concentration mask
- 1 pair of latex gloves
- 1 instructions manual

Part 2
(s. 312.43)

**Maximum permissible concentration
of contaminants in a gas mixture**
(measured at 21°C at 101.3 kPa)

Contaminants	Maximum concentration
Carbon monoxide	2 ml/m ³
Carbon dioxide	200 ml/m ³
Methane in - pure oxygen - a gas mixture	50 ml/m ³ 10 ml/m ³
Combined halogen hydrocarbons - trichlorotrifluoroethane - dichlorodifluoroethane - chlorodifluoroethane - fluorotrichloromethane	5 ml/m ³
Nitrogen dioxide	0.1 ml/m ³
Nitrous oxide	1 ml/m ³
Oil (condensates and particles)	5 mg/m ³ at normal temperature and pressure

Note: 1 ml/m³ is equal to 1 ppm per volume at normal temperature and pressure.

Part 3
(s. 312.64)

Basic content of a hyperbaric chamber medical kit

The hyperbaric chamber medical kit must contain at least the following items:

I. Diagnostic material

	Quantity
— flashlight	1
— Littmann Classic II stethoscope	1
— Welch Allyn otoscope and ophthalmoscope	1
— Tycos sphygmomanometer	1
— electronic thermometer to measure hypothermia and hyperthermia	1
— tuning fork, 128 vibrations per second	1
— reflex hammer	1
— tongue depressors	50
— safety pins	24
— wooden cotton swabs	100

II. Treatment material

— oropharyngeal airways (2 of each size) (sizes 3 to 8)	
— Ambu and Ambu mask for adults:	
medium size	1
large size	1
— bandage scissors (7 ½ in.)	1
— aluminum blanket	1
— packaged sterile gauze pads (4 in. x 4 in.)	25