

Underwater diving

1. Diving operations must be conducted in accordance with Division XXVI.I of the *Regulation respecting occupational health and safety*, S-2.1, r. 13.
2. The producer, the safety coordinator and the diving supervisor are responsible for determining whether there are hazards at the underwater locations proposed by the director and whether filming can take place there.
3. The diving supervisor's duties are as follows:
 - Prior to each dive, prepare a dive plan that complies with section 312.31 of the Regulation respecting occupational health and safety, S-2.1, r. 13, obtain the agreement of the dive team members, ensure that the actors and people present during underwater filming are informed of the dive plan and see to its implementation.
 - Supervise dive team members and remain at the surface unless he is required to enter the water because a diver's safety is threatened and only after delegating his supervisory responsibilities to a diver at the surface.
 - Ensure that diving equipment and installations comply with requirements, are in good working order and that equipment is installed correctly.
 - Ensure that each diver checks his equipment, once in the water, before starting the dive.
 - Designate the dive team member, at the surface, who is responsible for radio communication with each diver underwater.
 - Ensure that no other activities endanger the health or safety of dive team members in accordance with Order in Council O.C. 425-2010, s. 3.
 - Prepare and update a register of the dives supervised.
4. The diving supervisor must be certified in accordance with CSA Standard Z275.4-02..
5. Before diving operations start, the producer, the diving supervisor and the safety coordinator must define the work methods, including emergency measures, determine the equipment and signals to be used and identify any site-specific hazards.

When dives exceed the no-decompression limit or when the dive depth exceeds 40 m, the producer must ensure that there is a Class A double lock-type hyperbaric chamber in good condition and in working order at the site.

6. No changes may be made to the dive plan without the prior approval of the diving supervisor.
7. If there is any doubt regarding water quality (e.g., overchlorinated water), the producer must have an analysis done by an independent laboratory to determine the level of contamination. If contaminant levels exceed permissible standards, he must take appropriate action (use a surface supply, select a different filming site, etc.).





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8. The producer and the diving supervisor must ensure that the diver is physically capable of doing the work. Divers must undergo a medical examination by a diving physician every two years or more frequently if the physician deems it necessary and obtain a medical certificate stating that they are fit to dive. The medical certificate is valid for a maximum of two years.
9. The producer, the safety coordinator and the diving supervisor must ensure that all dive team members hold:
 - a certificate in occupational first aid (CNESST) that includes a component dealing with near-drowning;
 - a certificate in the administration of oxygen to dive accident victims and in oxygen rescue kit use and maintenance (e.g., DAN unit);
 - cardiopulmonary resuscitation certificates.

The diving supervisor must obtain a copy of these certificates at least 48 hours before the first dive and give a copy to the producer. In addition, at the site, there must be:

- a sufficient quantity of medical oxygen;
 - portable resuscitation equipment.
10. When a dive is conducted with a lifeline, there must be, at the site, in addition to the diver working underwater, a diver's tender who is responsible for monitoring the diver's lifeline at all times and at least one standby diver who is dressed to dive and ready to enter the water (minimum three-person team). The diving supervisor can be a member of this team. When a dive is conducted without a lifeline (freediving), there must be at least two divers underwater as well as one standby diver and one diver's tender at the surface.
 11. When an artist is required to work underwater, the producer, the diving supervisor and the safety coordinator must put appropriate safety measures in place, in particular with respect to thermal risks. For example, a team of divers that is exclusively responsible for supervising the actor while he is underwater.
It is important that the dive team assess the artist's abilities.
 12. An artist has the right to refuse to work underwater if he was not informed in advance or if he considers the situation dangerous. If a person 16 years of age or under is to take part in an underwater scene, permission must be obtained from his parents or guardians.
 13. When a stunt is performed, irrespective of the air supply system, there must be at least two divers in the water as well as a standby diver who is dressed to dive and ready to enter the water to ensure the group's safety. If there is a risk that the stunt person may become trapped, rescue breathing equipment must be kept within reach.



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14. Except in the event of an accident or under exceptional circumstances, divers must comply with the requirements of the decompression tables of the Defence and Civil Institute of Environmental Medicine of the Department of National Defence of Canada for the breathing mixture used, as they read at the time they are applied.
15. If a breathing mixture other than compressed air is used, the quality and quantity of the mixture must comply with CAN/CSA Standard Z275.2-11. The diving supervisor must inform the safety coordinator, the medical team and the producer. The producer must ensure that anyone using a gas mixture has the necessary training to do so.
16. Scuba tanks must be stored in such a way as to prevent them from rolling, falling or their valves from being struck by an object. They must be stored in the shade, fitted with valve protectors and their regulators must be removed.
17. Prior to any dive, the condition of the equipment used must be checked and it must be properly secured before doing a power-up test. When the equipment is being installed, the producer, the safety coordinator and the diving supervisor must check with the person in charge of electricity installation that any potentially hazardous equipment near the work zone is powered off and locked.

Prior to any dive, the person in charge of power-up will do a full power-up test of all the electrical components.

Once the entire site is safe, operations in the water can begin.

In or near the water, only very low voltage electric current sources (less than 30 volts) may be used and there must be a minimum clearance of one and a half times the height of the tripod supporting the source. To the extent possible, lighting systems and electrical wiring must be kept away from the water. All equipment must be protected by a CSA-certified (Canadian Standards Association) ground fault circuit interrupter (GFCI).

18. The producer must ensure that a communication system is available at all times at the dive base that can be used to contact the Service d'assistance médicale pour les urgences en plongée [Medical assistance service for diving emergencies] of the Centre de médecine de plongée du Québec [Quebec centre for diving medicine]. Divers must wear a medical alert bracelet that mentions the risk of barotrauma for 24 hours after a dive.

If a diver is showing signs of barotrauma or decompression sickness (nosebleeds, headaches, etc.) or requires recompression in a hyperbaric chamber, he must be given the appropriate treatment immediately and the Service d'assistance médicale pour les urgences en plongée must be contacted (for information, see the website of the Centre de médecine de plongée du Québec at www.cisss-ca.gouv.qc.ca/services-offerts/centres-dexpertise-et-services-regionaux/centre-de-medecine-de-plongee-du-quebec/).

19. Except when diving without a lifeline (freediving), every diver must be connected to the surface by a lifeline made of rope that is secured at the surface and attached to a diving harness.



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- 20.** A two-way communication system (i.e., a system that allows the diver to communicate with the surface and vice versa) using line signals must be established for each dive, except in the case of a buddy dive.
In addition, a two-way voice communication system must be used for all dives that are surface supplied, done with a buddy, done without a lifeline (freediving), at the end of a submerged pipe, in an environment with an obstruction, in a restricted access area, under ice and in a contaminated environment.
- 21.** A dive must be terminated immediately at the least sign of danger or equipment failure.
- 22.** During diving operations on a body of water, surface signaling must be put in place as follows:
 - buoys, dive flags and signaling lights to identify and prevent access to the dive site;
 - when a dive is conducted on a navigable waterway, flags and lights must be displayed in accordance with the competent authorities' safety rules (e.g., the Canadian Coast Guard).
- 23.** The producer, the safety coordinator or the diving supervisor must notify the agency in charge of traffic on the waterway in writing at least 48 hours before activities start.
- 24.** The diving supervisor must complete a daily log for each dive and give it to the producer and the safety coordinator. This log must be separate from the diver's log and updated by the diver in accordance with section 312.11 of the *Regulation respecting occupational health and safety*, S-2.1, r. 13.
- 25.** Before asking a diver to work onshore or travel by air, the diving supervisor must ensure that the time periods set out in the decompression tables are respected.