

NORTHWEST TERRITORIES & NUNAVUT

CODES OF PRACTICE

In accordance with the *Northwest Territories and Nunavut Safety Acts* and *Occupational Health and Safety Regulations*

PERSONAL PROTECTIVE EQUIPMENT COMMERCIAL DIVING OPERATIONS





Code of Practice Personal Protective Equipment COMMERCIAL DIVING OPERATIONS

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WHAT IS A CODE OF PRACTICE?

The Workers' Safety and Compensation Commission (WSCC) Codes of Practice (COP) provide practical guidance to achieve the safety requirements of the Northwest Territories and Nunavut Safety Acts and related Regulations.

Codes of Practice come into effect in each territory on the day they are published in the Northwest Territories Gazette and Nunavut Gazette.

Codes of Practice do not have the same legal force as the *Acts*, or the *Occupational Health and Safety Regulations*. A person or employer cannot face prosecution for failing to comply with a COP. They are considered industry best practice and may be a consideration when determining whether an employer or worker has complied with the *Safety Acts* and *Regulations* in legal proceedings.

As per subsection 18(3) of the Northwest Territories and Nunavut *Safety Acts*, "For the purpose of providing practical guidance with respect to the requirements of any provision of this Act or the regulations, the Chief Safety Officer may approve and issue such codes of practice as he or she considers are suitable for that purpose."

Employers and workers should follow WSCC Codes of Practice unless there is an alternative course of action that achieves the same or better occupational health and safety outcomes.

A Code of Practice

- Provides practical guidelines.
- Adapts to individual work sites.
- May serve as evidence.
- Should be followed unless there's a better way.

Copies of this code are available online from the WSCC at: wsc. nt.ca or wsc. nu.ca
If you would like this code of practice in another language, please contact us.

FOREWORD

The Workers' Safety and Compensation Commission (WSCC) produced this industry code of practice in accordance with subsections 18(3) and 18(4) of the Northwest Territories and Nunavut *Safety Acts*.

The Code of Practice applies to all workplaces covered by the Northwest Territories and Nunavut *Safety Acts* and *Occupational Health and Safety Regulations*.

The *Personal Protective Equipment – Commercial Diving Operations* code relates to section 4 and 5 of the *Safety Act* and sections 13,16, 23, 24, 74, 88, 89, 90, 101 and Part 20 – Diving Operations sections 290 to 308 of the *Occupational Health and Safety Regulations*.

This code is in effect as published in the in the Northwest Territories *Gazette* and Nunavut *Gazette*, in accordance with the *Safety Acts and Occupational Health and Safety (OHS) Regulations*.

IN EFFECT DATES:

Northwest Territories: June 1, 2015

Nunavut: May 31, 2016

REVIEWED AND REVISED: June 15, 2022



Chief Safety Officer, WSCC

Disclaimer

This publication refers to obligations under the workers' compensation and occupational health and safety legislation as administered by the Workers' Safety and Compensation Commission.

To ensure compliance with legal obligations always refer to the most recent legislation. This publication may refer to legislation that has been amended or repealed.

Check for information on the latest legislation at wsc.nt.ca or wsc.nu.ca, or contact WSCC at 1-800-661-0792.

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DEFINITIONS

Atmospheric pressure: standard atmospheric pressure or atmospheric pressure within 15 kPa of standard atmospheric pressure.

Bail-out system: an independent breathing gas supply of sufficient quantity to return a diver to the Surface, a diving bell or an emergency supply in the event of a malfunction of the primary breathing gas supply system.

Buddy system: involves the use of two divers, each of whom is responsible for the other diver's safety.

Bottom time: the total elapsed time, measured in minutes, from the time a descending diver leaves the surface of the water to the time the diver begins final ascent.

Decompression limit: the point in the descent of a diver, based on the depth and duration of the dive and determined in accordance with a decompression table, beyond which the diver will require one or more decompression stops during ascent if the diver descends further.

Decompression sickness: a condition caused by the formation of gas bubbles in the blood or body tissue as a result of the reduction of pressure on the body.

Decompression table: diving operations, repetitive dives and treatments of divers carried out in strict accordance with decompression tables and procedures published or approved by the Defence Research and Development Canada Toronto (formerly known as Defence and Civil Institute of Environmental Medicine) or another approved agency.

Dive site: the location at the surface of the water at which a diver enters the water at the beginning of a dive and to which the diver intends to return on ascent.

Diver: a competent worker who performs underwater work.

Dressed-in: fully equipped to dive and ready to enter the water, with all life support and communications equipment tested and at hand, but not necessarily with the helmet, face plate or face mask in place.

Free swimming diving: diving while using self-contained underwater breathing apparatus with the diver supervised but not tethered to the surface by a lifeline or float.

Hyperbaric chamber: a pressure vessel and associated equipment that are designed for the purpose of subjecting individuals to pressures exceeding atmospheric pressures.

Lifeline: a line of manila rope that is 19 mm in diameter and has a breaking strength of not less than 8.9 kN or material of equivalent or greater strength, secured at the surface to a substantial anchorage.

Mixed gas: a respirable breathing mixture, other than air, that provides adequate oxygen to support life and does not cause excessive breathing resistance, impairment of neurological functions or other detrimental physiological effects.

Scuba: Self-Contained Underwater Breathing Apparatus, including self-contained open-circuit compressed air breathing apparatus.

Standby diver: a diver who is available at a dive site to give assistance to a submerged diver in an emergency, dressed-in, and trained and equipped to operate at the depths and in the circumstances in which the submerged diver is operating.

Surface-supply diving: a mode of diving where the diver is supplied from the dive site with breathing gas from an umbilical.

Therapeutic recompression: treatment of a diver for decompression sickness, usually in a hyperbaric chamber.

Umbilical: a life support hose bundle comprising a composite hose and cable, or separate hoses and cables that extends from the surface to a diver or to a submersible chamber occupied by a diver and supplies breathing gas, power, heat and communication to the diver.

1 INTRODUCTION

This code of practice provides information on the regulatory requirement and standards related to commercial diving operations.

Diving work involves underwater construction, engineering, inspection, maintenance, repair, cleaning, salvage, search and rescue, and archaeological and marine research. The main occupational hazards affecting diving include:

- Working under overpressure
- Set up of dive locations
- Environmental conditions
 - Poor visibility
 - Cold temperatures
 - Water current
- Safety of equipment
- Exposure to hazardous substances
- Biological agents in polluted water
- Excessive physical loads
- Working hours and rest periods

The use of PPE does not prevent accidents or eliminate hazards. Make every effort to control all hazards at the source and take appropriate measures to reduce the risk to divers.

Definitions

Personal Protective Equipment (PPE) – any clothing, device, or other article for workers to use to prevent injury or to facilitate rescue.



Hearing Protection



Protective Footwear



Hand Protection



High-Visibility Clothing



Safety Helmet & Eye Wear



Safety Harness

PPE USAGE IS SPECIFIC TO EVERY WORK SITE AND JOB HAZARD ASSESSMENT

For more information see the PPE Codes of Practice and the [Hazard Assessment Code of Practice](#) at wsc.ca

2 CSA STANDARDS

The Canadian Standards Association (CSA) is an accredited standards development organization and certification body. The standards they develop define requirements for reducing the risk of workplace injuries.

Canadian Safety Standards can be found at <https://store.csagroup.org>

➤ **USE THE MOST UP-TO-DATE STANDARD**



CAN/CSA-Z275 is a series of standards on diving and caisson systems covering hyperbaric facilities, occupational diving, and construction work in compressed air.

2.1 CAN/CSA-Z275.1:16 (R2021)

Z275.1	<i>Hyperbaric Facilities</i>
2021	Published in 2016. Reaffirmed in 2021.

2.2 CAN/CSA-Z275:2:20

Z275.2	<i>Occupational Safety Code for Diving Operations</i>
2020	Published in 2020.

2.3 CAN/CSA-Z275.3:09 (R2021)

Z275.3	<i>Occupational Safety Code for Work in Compressed Air Environment</i>
2021	Published in 2009. Reaffirmed in 2021.

2.4 CAN/CSA-Z275.4:22

Z275.4	<i>Competency Standard for Diving, Hyperbaric Chamber, and Remotely Operated Vehicle Operations</i>
2022	Published in 2022.

2.5 CAN/CSA-Z275.5:13 (R2018)

Z275.5	<i>Occupational Diver Training</i>
2018	Published in 2013. Reaffirmed in 2018.

2.6 CAN/CSA-Z275.6:16 (R2021)

Z275.6	<i>Unexploded Explosive Ordnance (UXO), Munitions, and Police Explosive Diving</i>
2021	Published in 2016. Reaffirmed in 2021.

3 REGULATORY REQUIREMENTS

Occupational Health and Safety Regulations Northwest Territories and Nunavut

Part 3

General Duties of Workers

- 13.** A worker shall, in respect of a work site,
- (a) use safeguards, safety equipment and personal protective equipment required by these regulations; and
 - (b) follow safe work practices and procedures required by or developed under these regulations.

Supervision of Work

- 16.** (1) An employer shall ensure that, at a work site,
- (b) supervisors have sufficient knowledge of the following:
 - (iii) the need for, and safe use of, personal protective equipment

PERSONAL PROTECTIVE EQUIPMENT

Suitable and Adequate Equipment

- 89.** (1) If it is not reasonably possible to protect the health and safety of a worker by design of a plant and work processes, suitable work practices or administrative controls, an employer shall ensure that the worker wears or uses suitable and adequate personal protective equipment.
- (2) If personal protective equipment will not effectively protect a worker, an employer shall, if reasonably possible, provide alternative work arrangements for the worker.

General Responsibilities

- 90.** (1) An employer who is required by these regulations to provide personal protective equipment to a worker shall
- (a) provide approved personal protective equipment for use by the worker at no cost to the worker;
 - (b) ensure that the personal protective equipment is used by the worker;
 - (c) ensure that the personal protective equipment is at the work site before work begins;
 - (ii) maintained and kept in a sanitary condition, and
 - (iii) removed from use or service when damaged.
 - (d) ensure that the personal protective equipment is stored in a clean, secure location that is readily accessible to the worker;

- (e) ensure that the worker is
 - (i) aware of the location of the personal protective equipment, and
 - (ii) trained in its use;
- (f) inform the worker of the reasons why the personal protective equipment is required to be used and of the limitations of its protection; and
- (g) ensure that personal protective equipment provided to the worker is
 - (i) suitable and adequate and a proper fit for the worker,
- (2) If an employer requires a worker to clean and maintain personal protective equipment, the employer shall ensure that the worker has adequate time to do so during normal working hours without loss of pay or benefits.
- (3) If reasonably possible, an employer shall make appropriate adjustments to the work procedures and the rate of work to eliminate or reduce any danger or discomfort to the worker that could arise from the worker's use of personal protective equipment.
- (4) A worker who is provided with personal protective equipment by an employer shall
 - (a) use the personal protective equipment; and
 - (b) take reasonable steps to prevent damage to the personal protective equipment.
- (5) If personal protective equipment provided to a worker becomes defective or otherwise fails to provide the protection it is intended for, the worker shall
 - (a) return the personal protective equipment to the employer; and
 - (b) inform the employer of the defect or other reason why the personal protective equipment does not provide the protection that it was intended to provide.
- (6) An employer shall immediately repair or replace any personal protective equipment returned to the employer under paragraph (5)(a).

PART 20 DIVING OPERATIONS

Competent Workers

291. An employer shall ensure that only competent workers are required or permitted to perform diving operations.

Standards

292. An employer shall ensure that diving operations, repetitive dives and treatments of divers are carried out in strict accordance with decompression tables and procedures published or approved by the Defence Research and Development Canada Toronto (formerly known as Defence and Civil Institute of Environmental Medicine) or another approved agency. R-013-2020,s.240(1).

Medical Examination

293. (1) An employer who employs a diver shall ensure that the diver has a comprehensive medical examination that is

(a) conducted by a medical professional not less than least once every 12 months; and

(b) in accordance with the criteria set out in Appendices A and B of Canadian Standards Association standard CAN/CSA-Z275.2-11 *Occupational Safety Code for Diving Operations*, as amended from time to time.

(2) A diver shall not dive unless he or she has been certified by a medical professional in accordance with subsection (1) to be free of any medical condition that could make unsafe the performance of the type of dive to be carried out.

(3) A diver shall

(a) provide the employer with a copy of the certification referred to in subsection (2); and

(b) place the original certificate in the diver's personal log kept in accordance with section 304.

(4) An employer shall

(a) ensure that a diver is not required or permitted to dive unless the diver furnishes the employer with a copy of a certificate obtained under subsection (2) within the preceding 12 months;

(b) retain the copy of the certificate referred to in paragraph (a) while the diver works for the employer.

Diving Supervisor

294. An employer shall

(a) ensure that diving operations are conducted under the direction of diving supervisors; and

(b) provide to diving supervisors information and resources necessary to protect the health and safety of each diver under the direction of the diving supervisors.

Minimum Crew

295. An employer shall ensure that workers are present in sufficient numbers for a diving operation to ensure that the operation can be undertaken safely.

Standby Diver

296. (1) In this section,

"dressed-in" means fully equipped to dive and ready to enter the water, with all life support and communications equipment tested and at hand, but not necessarily with the helmet, face plate or face mask in place;

"standby diver" means a diver who is

(a) available at a dive site to give assistance to a submerged diver in an emergency,

(b) dressed-in, and

(c) trained and equipped to operate at the depths and in the circumstances in which the submerged diver is operating.

(2) An employer shall ensure that a standby diver is present when diving operations are in progress.

(3) An employer shall not require or permit a standby diver to dive other than in an emergency.

Diver's Tender

297. (1) An employer shall designate a worker as a diver's tender to monitor the dive of a diver.

(2) A diver's tender must be competent in the operation of diving apparatus used for a dive, the diving operation in progress and the emergency diving procedures and signals to be used between diver and diver's tender.

(3) An employer shall ensure that

(a) a diver's tender acceptable to the diver is provided for each diver in the water during a diving operation; and

(b) the diver's tender devotes his or her whole time and attention to the work as a diver's tender.

Breathing Gas

298. (1) In this section, "mixed gas" means a respirable breathing mixture, other than air, that provides adequate oxygen to support life and does not cause excessive breathing resistance, impairment of neurological functions or other detrimental physiological effects.

(2) If air is used as the breathing gas by a diver, an employer shall ensure that

(a) the air is clean and wholesome and supplied in adequate quantity; and

(b) a reserve supply of 2.5 times the air required for the operation is supplied.

(3) An employer shall ensure that any air or mixed gas used as a breathing gas by a diver meets the approved standard for composition and purity requirements.

(4) If a mixed gas is used as a breathing gas by a diver, an employer shall ensure that the decompression procedures, schedules and tables used are appropriate for the mixed gas.

Diving Equipment

299. An employer shall ensure that diving equipment, including breathing apparatus, compressors, compressed gas cylinders, gas control valves, pressure gauges, reserve supply devices, pipings, helmets, winches, cables, diving bells or stages and other accessories necessary for the safe conduct of the diving operation, is

(a) of approved designs, sound construction, adequate strength and free from obvious defects;

(b) maintained in a condition that will ensure the equipment's continuing operating integrity and suitability for use;

- (c) adequately protected against malfunction at low temperatures that could be caused by ambient air or water or by the expansion of gas; and
- (d) examined, tested, overhauled and repaired in accordance with the manufacturer's specifications.

Diving Base

300. (1) An employer shall not allow a diving operation to proceed unless a diving base is set up before and maintained during the diving operation.

(2) While a diving operation is in progress, an employer shall ensure that the diving base is equipped with the following:

- (a) if scuba is being used, one complete spare set of underwater breathing apparatus with fully charged cylinders to be used for emergency purposes only;
- (b) an adequate quantity of oxygen for therapeutic purposes;
- (c) one shot-line of weighted 19 mm manila of sufficient length to reach the bottom at the maximum depth of water at the dive site;
- (d) a first aid kit that meets the requirements of Part 5;
- (e) one complete set of decompression tables;
- (f) a suitable heated facility for the use of divers that is located on or as near as possible to the dive site;
- (g) any other equipment that could be necessary to protect the health and safety of workers. R-012-2020,s.11.

Hyperbaric Chamber

301. (1) In this section, "Class A hyperbaric chamber" means a hyperbaric chamber that meets the requirements for a Class A hyperbaric chamber as set out in Canadian Standards Association standard Z275.1-05, *Hyperbaric Facilities*, as amended from time to time;

"decompression limit" means the point in the descent of a diver, based on the depth and duration of the dive and determined in accordance with a decompression table, beyond which the diver will require one or more decompression stops during ascent if the diver descends further.

(2) An employer shall ensure that a Class A hyperbaric chamber in operable condition is on site if

- (a) a dive is planned that could exceed the decompression limit; or
- (b) the depth of a dive exceeds 50 m.

Diving Plan

302. (1) In this section, "surface crew" includes the minimum crew required under section 295, the diving supervisor, standby diver and diver's tender.

(2) A diving supervisor shall submit a general diving plan in writing to the employer before beginning a diving operation.

(3) A diving supervisor shall

- (a) plan the dive to ensure the health and safety of the diver;

- (b) instruct the surface crew on the procedures necessary to ensure the health and safety of the diver;
- (c) ensure that all necessary equipment is available and is in good operating condition;
- (d) ensure that the quantity of breathing gas supplied to a diver is sufficient for the dive that is planned;
- (e) develop and implement a contingency plan for any reasonably foreseeable emergency situation that could endanger the diver;
- (f) keep a log showing each diver's activities on each day and make entries respecting each dive on the day on which the dive is performed;
- (g) remain in the immediate area of the dive site while a diving operation is in progress;
- (h) ensure that each diver enters in the diver's personal log the information required by paragraph 304(3)(a) for each dive performed by the diver; and
- (i) verify the accuracy of the information recorded in each diver's personal log required by paragraph 304(3)(a) and sign the entry to acknowledge the supervisor's verification.

(4) Nothing in this section limits the responsibilities of an employer under this Part.

General Responsibilities of Diver

303. A diver shall

- (a) proceed in accordance with the general diving plan and the instructions of the diving supervisor;
- (b) inspect his or her equipment immediately before each dive; and
- (c) begin each dive by submerging and checking all equipment to ensure that there are no leaks and that the equipment is functioning properly.

Diver's Personal Log

304. (1) In this section,

"bottom time" means the total elapsed time, measured in minutes, from the time a descending diver leaves the surface of the water to the time the diver begins final ascent;

"therapeutic recompression" means treatment of a diver for decompression sickness, usually in a hyperbaric chamber.

(2) A diver shall keep a personal log and retain the log for a five-year period after the log's completion.

(3) A diver shall record in the personal log, in chronological order

- (a) an entry for each dive that he or she has made, verified and signed by the diving supervisor and including
 - (i) the type of breathing apparatus used,
 - (ii) the breathing gas used,
 - (iii) the time at which the diver left the surface,

- (iv) the bottom time,
 - (v) the maximum depth reached,
 - (vi) the time the diver left the bottom,
 - (vii) the time the diver reached the surface,
 - (viii) the surface interval, if more than one dive is undertaken in a day,
 - (ix) the decompression table and schedule used,
 - (x) the date of the dive,
 - (xi) any observations relevant to the health or safety of the diver arising from the dive, and
 - (xii) the name of the employer; and
- (b) an entry signed by an attending physician or diving supervisor, respecting any therapeutic recompression or other exposure to a hyperbaric environment.

Buddy System

R-013-2020, art. 250.

305. (1) The buddy system of diving involves the use of two divers, each of whom is responsible for the other diver's safety.

(2) A diver who is diving using the buddy system shall

- (a) maintain constant visual contact with the other buddy diver during the dive;
- (b) know the hand signals being used and acknowledge each signal as given;
- (c) not leave the other buddy diver unless it is an emergency requiring the assistance of one of the buddy divers; and
- (d) abort the dive immediately if the buddy divers become separated from each other or the other buddy diver aborts the dive.

Free Swimming Diving

306. (1) In this section, "free swimming diving" means diving while using self-contained underwater breathing apparatus with the diver supervised but not tethered to the surface by a lifeline or float.

(2) An employer shall ensure that free swimming diving is performed only if a dive cannot safely be accomplished in the tethered mode.

(3) An employer shall not require or permit a diver to perform free swimming diving unless

- (a) the diver is accompanied by a tethered in-water standby diver or the buddy system is used; and
- (b) the employer has first ensured that conditions are such that the free swimming dive can be undertaken safely.

Scuba Diving

307. (1) An employer shall ensure that, during scuba diving operations, a diver uses

- (a) open-circuit scuba equipped with a demand regulator and a tank with quick-release harness;
 - (b) a reserve device or bail-out system;
 - (c) a lifeline unless the buddy system is used; and
 - (d) an exposure suit or protective clothing that is appropriate for the condition of work and the temperature of the water.
- (2) An employer shall ensure that a diver using scuba equipment does not
- (a) dive to a depth exceeding 50 m; or
 - (b) dive without a lifeline
 - (i) under ice, or
 - (ii) if hazardous conditions exist, including water currents, low visibility and adverse weather conditions.

Surface-supply Diving

- 308.** (1) In this section,
- "surface-supply diving" means a mode of diving where the diver is supplied from the dive site with breathing gas from an umbilical;
- "umbilical" means a life support hose bundle comprising a composite hose and cable, or separate hoses and cables, that
- (a) extends from the surface to a diver or to a submersible chamber occupied by a diver, and
 - (b) supplies breathing gas, power, heat and communication to the diver.
- (2) If a diver is required or permitted to perform surface-supply diving, an employer shall ensure that
- (a) the umbilical incorporates a lifeline to prevent stress on the hose;
 - (b) the connections between the air line and the equipment supplying the breathing gas to the diver are secured and properly guarded to prevent accidental disconnection or damage;
 - (c) the air line is equipped with the following, in sequence from the surface connection:
 - (i) a regulating valve that is clearly marked as to which diver's air supply the valve controls,
 - (ii) a pressure gauge that is accessible and clearly visible to the diver's tender,
 - (iii) a non-return valve at the point of attachment of the air line to the diving helmet or mask;
 - (d) the diver carries a bail-out system; and
 - (e) the diver is equipped with a lifeline and an effective means of two-way communication between the diver and the diver's tender referred to in section 297. R-085-2015,s.7.

Code of Practice
PERSONAL PROTECTIVE EQUIPMENT
COMMERCIAL DIVING OPERATIONS

Workers' Safety & Compensation Commission
Northwest Territories and Nunavut

WSCC Emergency Reporting
24-hour Incident Reporting Line

1 800 661-0792

WSCC



If you would like this Code of Practice in another language, please contact us.