

## DEFINITIONS

- G24.1-1 [Fishing vessel – Definition](#)
- G24.1-2 [Owner or master definition – Determining who is the employer](#)
- G24.1-3 [Crewmember – Definition](#)
- G24.1-4 [Dive site – Definition](#)

## DIVING OPERATIONS

### GENERAL REQUIREMENTS

- G24.9 [Diving operations – Notice of project](#)
- G24.10 [Medical certification](#)
- G24.10/G24.11 [Medical certification and fitness of recreational diving instructors](#)
- G24.12 [Training](#)
- G24.13 [Principal performers using underwater diving equipment](#)
- G24.13-1 [Evidence of competency for scientific divers](#)
- G24.13-2 [Diving competency standards](#)
- G24.17 [Safe diving procedures](#)
- G24.18 [Diving supervisor qualifications](#)
- G24.21 [Diving tables](#)
- G24.25 [Acceptable standards for hyperbaric chambers](#)
- G24.26 [Breathing mediums](#)
- G24.29 [Gauges and meters](#)

### SCUBA DIVING

- G24.36 [Minimum dive crew for scuba diving](#)
- G24.37 [Restrictions on scuba](#)

### SURFACE SUPPLY DIVING

- G24.40 [Minimum crew requirements](#)
- G24.43 [Surface supply diving – Compressors](#)

## FISHING OPERATIONS

### GENERAL REQUIREMENTS

- G24.70 [Compliance with Standards](#)
- G24.71 [Owner and master responsibilities – Major modifications](#)
- G24.72 [Documentation](#)
- G24.76 [Vessel preparation](#) [Retired]
- G24.77 [Reporting injuries](#)
- G24.84 [Protection from falling](#)
- G24.85 [Deck openings](#)
- G24.86 [De-energization](#)
- G24.90 [Ventilation](#)
- G24.97(1) [Acceptable standards for immersion suits](#)
- G24.100 [Ozone safe work practices](#)

G24.1-1 Fishing vessel – Definition

Issued March 1, 2019; Editorial Revision consequential to June 3, 2019 Regulatory Amendment

### Regulatory excerpt

Section 24.1 of the *OHS Regulation* ("Regulation") states, in part:

"fishing vessel" means any commercial vessel used in catching fish or collecting or transporting fish for landing;

### Purpose of guideline

The purpose of this guideline is to provide clarity regarding the application of sections 24.69 to 24.143 of the *Regulation* to "fishing vessels."

### Application

Sections 24.69 to 24.143 cover all commercial fishing activities conducted from commercial fishing vessels, including geoduck divers. Among the activities not covered are the following:

- Fishing activities conducted entirely on shore, such as clam diggers
- Operations that fall within the category of fish farms, such as oyster farms
- Fishing done for the purpose of obtaining the fisher's own food

Sections 24.69 to 24.143 do apply to activities incidental to fishing operations that are carried out on land, such as on the dock where the vessel is moored or in a locker where the vessel's gear is stored. The regular maintenance or minor repair of a fishing vessel conducted by the owner, master, or crew is also covered.

Sections 24.69 to 24.143 do not apply to constructing a fishing vessel or doing major repairs.

#### G24.1-2 Owner or master definition – Determining who is the employer

Issued September 1999; Editorial Revision May 2005; Revised November 21, 2006; Editorial Revision March 1, 2019; Editorial Revision consequential to June 3, 2019 Regulatory Amendment; Editorial Revision April 6, 2020

#### Regulatory excerpt

Section 24.1 of the *OHS Regulation* ("Regulation") states, in part:

"crewmember" for the purposes of sections 24.69 to 24.143, means any person who is working on a fishing vessel;

"master" for the purposes of sections 24.69 to 24.143, means the person in overall command of a fishing vessel;

"owner" for the purposes of sections 24.69 to 24.143, means the person who holds legal title to a fishing vessel and also includes a charterer of a fishing vessel;

Section 13 of the *Workers Compensation Act* ("Act") states, in part:

"employer" means

...

(c) the owner and the master of a fishing vessel for which there is crew to whom the compensation provisions apply as if the crew were workers,

but does not include a person exempted from the application of the OHS provisions by order of the Board;

Section 21 of the *Act* states:

(1) Every employer must

(a) ensure the health and safety of

(i) all workers working for that employer, and

(ii) any other workers present at a workplace at which that employer's work is being carried out, and

(b) comply with the OHS provisions, the regulations and any applicable orders.

(2) Without limiting subsection (1), an employer must

(a) remedy any workplace conditions that are hazardous to the health or safety of the employer's workers,

(b) ensure that the employer's workers

(i) are made aware of all known or reasonably foreseeable health or safety hazards to which they are likely to be exposed by their work,

(ii) comply with the OHS provisions, the regulations and any applicable orders, and

(iii) are made aware of their rights and duties under the OHS provisions and the regulations,

(c) establish occupational health and safety policies and programs in accordance with the regulations,

(d) provide and maintain in good condition protective equipment, devices and clothing as required by regulation and ensure that these are used by the employer's workers,

(e) provide to the employer's workers the information, instruction, training and supervision necessary to ensure the health and safety of those workers in carrying out their work and to ensure the health and safety of other workers at the workplace,

(f) make a copy of this *Act* and the regulations readily available for review by the employer's workers and, at each workplace where

workers of the employer are regularly employed, post and keep posted a notice advising where the copy is available for review,

(g) consult and cooperate with the joint committees and worker health and safety representatives for workplaces of the employer, and

(h) cooperate with the Board, officers of the Board and any other person carrying out a duty under the OHS provisions or the regulations.

### **Purpose of guideline**

The purpose of this guideline is to provide principles to consider in determining to what extent the owner or master of a fishing vessel carries the responsibilities of the employer under the OHS provisions of the *Act* and the *Regulation*.

### **Employer responsibilities of masters and owners under OHS legislation**

*Background - both owners and masters are employers of the crew*

The workplace party with primary responsibility over health and safety is the employer. Section 21 of the *Act* contains specific obligations with respect to an employer. In addition, the *Regulation* places many requirements on the employer.

In the fishing industry, both owners and masters may be considered to be the employer of the crew. Section 13 of the *Act* defines "employer" for the purposes of the OHS provisions of the *Act* and the *Regulation*. That definition includes the owner and master of a fishing vessel for which there are crewmembers to whom the compensation provisions of the *Act* applies as if the crew were workers. Therefore both owners and masters of fishing vessels are required to meet the responsibilities of an "employer" specified by the *Regulation* and the OHS provisions of the *Act*. The level of compliance of owners and masters with their obligations as "employer" may vary according to the situation. The following guideline sets out basic principles for determining the "employer" obligations of owners and masters.

#### *"Employer" obligations*

Masters and owners each play different roles in a commercial fishing operation. Each "employer" will be responsible for workplace conditions to the extent they have influence over them. Determining the degree of control over and ability to influence a particular workplace condition may involve assessing the following:

- The type of operation carried on by the owner and master
- The contract between the master and vessel owner
- The reality of the relationship between the owner, master, and crew
- Whether the owner or master hired the crewmembers

Note that section 30 of the *Act* contemplates obligations being imposed on one or more persons and supports the notion of joint responsibility over workplace health and safety:

(1) This section applies if one or more OHS provisions or provisions of the regulations impose the same obligation on more than one person.

(2) If one of the persons subject to the obligation complies with the applicable provision, the other person subject to the obligation are relieved of that obligation only during the time when

(a) simultaneous compliance by more than one person would result in unnecessary duplication of effort and expense, and

(b) the health and safety of persons at the workplace is not put at risk by compliance by only one person.

The following sets out the responsibility for owners and masters over the two primary aspects of the fishing vessel workplace, vessel operation and infrastructure. However, as noted above, the obligation of the owner or master will have obligations based on the reality of the relationship and the ability to influence workplace safety.

#### *1. Crew and operation of the vessel*

The master generally hires the crew and obviously is the "employer" who will be present at the workplace during fishing operations. The master will have more control over the crew than the owner, and will normally be the employer primarily responsible for crew safety while the vessel is being operated.

This primary responsibility will extend to a number of elements listed in section 21(2) of the *Act*, such as providing instruction as to workplace hazards, ensuring the crew use protective equipment and devices, ensuring a safety program is in place, and making a copy of the *Act* and *Regulation* available to crewmembers.

The master's responsibility related to certain items in section 21(2) may be more limited, if there are limitations to the manner in which the master is capable of fulfilling those obligations.

For example, section 21(2)(a) of the *Act* provides that the employer must remedy workplace conditions that are hazardous to the health and safety of workers. A master may be able to directly remedy some workplace conditions, but not all. Where the workplace condition relates to the integrity or maintenance of the vessel or equipment, the master will be expected to provide information about the hazardous condition to the owner. The owner will then have the obligation, also under section 21(2)(a) of the *Act*, to remedy the relevant hazards.

Similarly, the manner in which each of the master or owner will comply with the obligation to train crewmembers, establish safety policies and

programs, and consult with health and safety representatives (where required), will depend on the circumstances and the relationship between the owner, master, and crewmembers. For example, where owners are more involved in the selection of the crew and the terms of employment, those owners will bear primary responsibility for training the crew, while the master's role will relate more to direct instruction. Where the master is primarily involved in hiring, the master will bear more responsibility for training and the owner's responsibility may be limited to directing the master and ensuring the master complies with the master's obligations.

Even where vessel owners have little or no direct control over the crew and operation of the vessel, and where the master hired the crewmembers, owners will retain the obligation to ensure the health and safety of crewmembers of the vessel under section 21(1)(a)(ii) of the *Act*. Vessel owners may control deadlines, quotas, or any other operating requirements that could affect the health and safety of workers.

Further reference should be made to specific obligations placed on masters and owners in [sections 24.69 through 24.143](#) of the *Regulation*. In general, sections 24.69 to 24.143 place responsibility for operating the vessel safely with the master, and place responsibility for the infrastructure, maintenance, and overall integrity of the vessel and equipment with the owner.

Where a vessel constitutes a "multiple employer workplace" under [section 24](#) of the *Act*, the master will be the owner who will act as a prime contractor unless a prime contractor is appointed.

## *2. Infrastructure, maintenance, and overall integrity of the vessel and equipment*

In general, the vessel owner has control over the infrastructure, maintenance, and overall integrity of the vessel and equipment. Therefore, the owner will typically be responsible for employer duties that relate to the infrastructure, maintenance, and overall integrity of the vessel and equipment.

For example, requirements in the *Regulation* that relate to general conditions of the workplace will primarily be the owner's responsibility.

[Section 4.2](#) of the *Regulation* requires the employer to ensure that each building and temporary or permanent structure in a workplace is capable of withstanding any stresses likely to be imposed on it. The vessel owner would typically be responsible for meeting this requirement because the vessel owner typically has control over the integrity of the structures on the vessel.

However, certain requirements with respect to the workplace may fall to both owners and masters. For example, under [section 3.5](#) of the *Regulation*, every employer must ensure that regular inspections are made of all workplaces, including tools, equipment, machinery, and work methods and practices, at intervals that will prevent the development of unsafe working conditions. Both the owner and master have responsibility for fulfilling this duty.

Sections 24.69 to 24.143 of the *Regulation* specify particular responsibilities of owners and masters. In general, sections 24.69 to 24.143 place responsibility for the infrastructure, maintenance, and overall integrity of the vessel and equipment with the owner. For example, under [section 24.71](#) of the *Regulation*, the owner of the vessel must ensure that all machinery and equipment on board a fishing vessel is capable of safely performing the functions for which it is used. Under [section 24.82](#) of the *Regulation*, the master must ensure that all rigging is inspected regularly to ensure that it is able to safely carry out the work for which it was designed.

Masters will also have obligations to protect crewmembers with respect to vessel and equipment maintenance and integrity. Masters would be expected to understand the operating characteristics and limitations of the vessel, and communicate issues relating to the maintenance and integrity of the vessel and equipment to the owner.

Note also that vessel owners must comply with the general duties of owners under [section 25](#) of the *Act*.

### **G24.1-3 Crew member – Definition**

Issued March 1, 2019; Editorial Revision consequential to June 3, 2019 Regulatory Amendment

#### **Regulatory excerpt**

Section 24.1 of the *OHS Regulation* ("*Regulation*") states, in part:

"*crewmember*" for the purposes of sections 24.69 to 24.143, means any person who is working on a fishing vessel;

"*master*" for the purposes of sections 24.69 to 24.143, means the person in overall command of a fishing vessel;

"*owner*" for the purposes of sections 24.69 to 24.143, means the person who holds legal title to a fishing vessel and also includes a charterer of a fishing vessel;

#### **Purpose of guideline**

The purpose of this guideline is to further define "crewmember" for the purpose of this regulation.

#### **Crewmember**

The definition of "crewmember" includes all persons employed in the harvesting or transporting of fish on a fishing vessel. It includes the "master" and the "owner" when either is working on the vessel.

Sections 24.69 to 24.143 do not apply to passengers or other persons who do no work on the vessels or employees of contractors who come on board to repair the vessel where it is moored or in a locker. The latter are, however, subject to other sections of the *Regulation*.

Issued November 26, 2019; Revised November 13, 2020; Editorial Revision December 18, 2020

**Regulatory excerpt**

Section 24.1 of the *OHS Regulation* ("*Regulation*") states, in part:

"*dive site*" means any location where a diving operation takes place including a boat, scow, float, raft or platform which is seaworthy, secure, and of sufficient size to safely accommodate all workers and equipment without overcrowding;

**Purpose of guideline**

The purpose of this guideline is to provide further description of what constitutes a dive site, and clarifies when two vessels can be considered a single site.

**What constitutes a dive site**

A dive site can be a location in open water, on a shoreline, in a river, or within a structure such as a pump house or water reservoir.

The minimum crew requirements prescribed by the *Regulation* apply to each individual dive site but is never less than three.

**Single site with two vessels**

It is not uncommon to see two seafood harvest vessels, each with two crew, working in the same vicinity. Alone they do not meet the minimum crew requirements; however, if done correctly the vessel crews can work together to satisfy the regulatory requirements. Here is an example of how this can be done correctly:

Two vessels employed by either the same firm or two different firms may constitute a single dive site if they have written dive procedures (as per section 24.17 of the *Regulation*), dive plan (as per section 24.18 of the *Regulation*), and there is only one dive supervisor. A written agreement is recommended if both vessels are not from the same firm (reference sections [21 and 24](#) of the *Workers Compensation Act* and associated policies [P2-21-1](#) and [P2-24-1](#)).

To constitute a single dive site, the vessels will be working together in close proximity, and able to render emergency assistance as required. The dive operation must also ensure they adhere to section 24.33 of the *Regulation* for standby diver requirements. It is important that the boat operators be sufficiently competent to respond to diving emergencies.

G24.9 Diving operations – Notice of project

Issued September 1999; Editorial Revision February 25, 2013

**Regulatory excerpt**

Section 24.9(1) of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must submit a notice of project for diving activity, or notify the Board by telephone, at least 24 hours before commencing a diving operation which involves
  - (a) construction diving,
  - (b) engineering inspection diving,
  - (c) diving in a contaminated environment,
  - (d) diving under ice, under or between nets, or into other areas of potential entrapment,
  - (e) exceeding the no-decompression limit, or
  - (f) the use of mixed gas other than nitrox as a breathing medium.

Section 24.9(3) of the *Regulation* states:

- (3) Before diving commences, a copy of the notice of project must be posted at the worksite, or if notification is provided by telephone, a written summary of that notification that contains the information required by subsection (2) must be posted at the worksite.

**Purpose of guideline**

This guideline explains the requirements for posting information when a notice of project (NOP) has been submitted by telephone.

**Notice over telephone**

Section 24.9(3) of the *Regulation* means that if notice is given over the telephone then the employer must legibly write down all the required information and post it at the worksite. If posting is not practicable, the notice must be available at the workplace and its location made known to the workers at the worksite.

### Submitting an NOP

NOP may be submitted online at [WorkSafeBC Submit a Notice of Project form](#). WorkSafeBC also provides a standard form that can be used for sending written notice to WorkSafeBC or recording telephone notices. This form defines the detailed information that must be given, whether notice is given by telephone or in writing. The forms can be ordered from [WorkSafeBCStore.com](#).

### G24.10 Medical certification

Issued September 1999; Editorial Revision October 2004; Editorial Revision February 25, 2013

#### Regulatory excerpt

Section 24.10 of the *OHS Regulation* ("Regulation") states:

- (1) The employer must ensure that each diver has current medical certification, from a physician knowledgeable and competent in diving medicine, before commencing diving operations.
- (2) A diver's medical certification must be
  - (a) established prior to entry into any commercial diving activity,
  - (b) renewed every 2 years up to age 39 and annually from age 40 onwards,
  - (c) renewed more frequently than required by paragraph (b) if clinically indicated, and
  - (d) re-evaluated by a physician knowledgeable and competent in diving medicine if the diver is subjected to an event or has a physical condition which may affect the diver's medical status.
- (3) A copy of each diver's medical certification must be kept at the dive site.

#### Purpose of guideline

This guideline provides information on physicians recognized as knowledgeable and competent in diving medicine.

#### Dive Physicians

WorkSafeBC keeps a list of physicians that it recognizes as being "knowledgeable and competent in diving medicine." This list is available online: [Dive medicine physicians](#).

Section 24.10 of the *Regulation* is violated if a person works as a diver or a standby diver without being certified by a physician knowledgeable and competent in diving medicine.

A request to have a physician added to the list should be sent to [Certification Services](#).

### G24.10/24.11 Medical certification and fitness of recreational diving instructors

Issued June 26, 2014

#### Regulatory excerpt

Section 24.10(1) of the *OHS Regulation* ("Regulation") states:

- (1) The employer must ensure that each diver has current medical certification, from a physician knowledgeable and competent in diving medicine, before commencing diving operations.

Section 24.11 of the *Regulation* states:

- (1) A diver must not dive if, in the opinion of the diving supervisor, the diver is incapable of functioning safely underwater.
- (2) A diver must be medically re-examined, as required by the diving supervisor, to ensure that the diver is fit to dive.
- (3) Divers, standby divers, and divers' tenders must not participate in any diving operation if they are physically or emotionally fatigued or if they have consumed drugs or alcohol which would impair their ability to work safely.

#### Purpose of guideline

This guideline explains why Part 24 of the *Regulation* does not apply to recreational diving instruction, and refers to relevant information in another guideline.

#### Part 24 does not apply but other requirements do apply

Part 24 of the *Regulation* contains requirements for diving operations ([sections 24.7 to 24.68](#)). According to section 24.7, the diving operations regulations "apply to all persons involved in any occupational diving operation." Recreational diving operations are not considered occupational diving operations. As a result, recreational diving instructors are not required to comply with the regulatory requirements relating to diving operations.

As section 24.10 is part of the diving operations regulations, employers of recreational diving instructors are not required to meet this requirement, and recreational diving instructors are not required to comply with the requirement to undergo medical certification. Similarly, the restrictions and obligations in section 24.11 regarding diving fitness, do not apply to recreational diving instructors or their employers.

Although not covered by sections 24.10 and 24.11, general regulatory requirements relating to the fitness of workers apply to recreational diving instructors and their employers. [Section 4.19](#) of the *Regulation* contains requirements around physical or mental impairment. Guideline [G4.19 Physical or mental impairment – recreational diving instructors](#) provides guidance for recreational diving instructors and employers regarding fitness for work.

#### G24.12 Training

Issued September 1999; Editorial Revision October 2004; Editorial Revision November 23, 2005; Revised December 16, 2016

##### **Regulatory excerpt**

Section 24.12 of the *OHS Regulation* ("Regulation") states:

- (1) A diver must not dive unless the diver has been thoroughly trained in the theory and use of the diving apparatus that the diver will be using.
- (2) The training required by subsection (1) must be provided by a person or agency acceptable to the Board.
- (3) All divers, diving supervisors and divers' tenders must be trained in CPR, oxygen (O<sub>2</sub>) therapy, and diving accident management.

Section 24.13 of the *Regulation* states:

- (1) The employer and diving supervisor must ensure that all divers
  - (a) meet the minimum requirements of [CSA Standard Z275.4-97 Competency Standard for Diving Operations](#), and
  - (b) are competent to use the diving equipment that will be used in the diving operation.
- (2) A certified copy of competency documents for each diver must be available for inspection on site by an officer.

##### **Purpose of guideline**

Section 24.12(2) of the *Regulation* requires that divers be trained by a person or agency acceptable to WorkSafeBC and as required by section 24.13(1)(a); commercial (occupational) divers must be trained in accordance with the standards of *CSA Standard Z275.4-97 Competency Standard for Diving Operations* ("Standard").

This guideline provides a link to the training providers in B.C. that train to the *Standard*. The guideline also lists the accepted certificates that meet the requirement of section 24.13(2) of the *Regulation*.

##### **Accepted training providers**

Information on accepted training providers can be found at [Diver Certification Board of Canada Diving Training Providers](#).

##### **Competency documents**

Certificates that meet the requirement under section 24.13(2) for occupation diving include the following:

- A current certificate issued by the Diver Certification Board of Canada (DCBC). This certificate must be renewed by or on expiry date
- WorkSafeBC diving certificates (refer to Note below)
  - restricted or unrestricted Scuba Certificate
  - restricted or unrestricted Surface Supply Certificate
  - Seafood Harvesting Certificate
- A National Energy Board of Canada ("NEBC") Certificate (refer to Note below)

Note: The WorkSafeBC and NEBC certificates are no longer being issued; however, if a diver holds one of these certificates and it does not have an expiry date, it is currently considered valid for the purpose of meeting section 24.13(2) of the *Regulation*. If a diver holding one of these certificates has not been actively diving in the last five years and intends to return to occupational diving in the future, it is recommended that the diver's be updated through an accepted training provider.

Other certificates or documented training may be acceptable. Contact [Certification Services](#) (Diving) for review and comparison to CSA Standard Z275.4.

#### G24.13 Principal performers using underwater diving equipment

Issued April 27, 2000; Editorial Revision April 2005; Revised December 16, 2016; Editorial Revision June 30, 2021

##### **Regulatory excerpt**

Section 24.10 of the *OHS Regulation* ("Regulation") states:



- (1) The employer must ensure that each diver has current medical certification, from a physician knowledgeable and competent in diving medicine, before commencing diving operations.
- (2) A diver's medical certification must be
  - (a) established prior to entry into any commercial diving activity,
  - (b) renewed every 2 years up to age 39 and annually from age 40 onwards,
  - (c) renewed more frequently than required by paragraph (b) if clinically indicated, and
  - (d) re-evaluated by a physician knowledgeable and competent in diving medicine if the diver is subjected to an event or has a physical condition which may affect the diver's medical status.
- (3) A copy of each diver's medical certification must be kept at the dive site.

Section 24.12 of the *Regulation* states:

- (1) A diver must not dive unless the diver has been thoroughly trained in the theory and use of the diving apparatus that the diver will be using.
- (2) The training required by subsection (1) must be provided by a person or agency acceptable to the Board.
- (3) All divers, diving supervisors and divers' tenders must be trained in CPR, oxygen (O<sub>2</sub>) therapy, and diving accident management.

Section 24.13 of the *Regulation* states, in part:

- (1) The employer and diving supervisor must ensure that all divers
  - (a) meet the minimum requirements of [\*CSA Standard Z275.4-97 Competency Standard for Diving Operations\*](#)

Section 4.4 of the *Regulation* states in part:

- (2) When this Regulation requires a person to comply with
  - (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board

#### **Purpose of guideline**

Section 24.13(1)(a) of the *Regulation* requires that all divers in an occupational diving operation meet the requirements of *CSA Standard 275.4-97 Competency Standard for Diving Operations*. Each diver is also required to be competent to use the equipment that will be used during the diving operation. The purpose of this guideline is to outline the conditions under which principal performers (actors and stunt performers) may perform underwater holding only a sport diving (open water) certification.

#### **Principal performers**

A principal performer for the purposes of this interpretation refers to actors and stunt performers contracted for artistic purposes. Occasionally an underwater scene will require principal performers to go underwater using a self-contained underwater breathing apparatus (SCUBA) or surface supply equipment to achieve the required film sequence.

Under certain situations, a principal performer going underwater for selected shots in shallow depths may be considered not to be a diver under the *Regulation*. Each principal performer is, however, considered to be a worker and is subject to the requirements of other sections of the *Workers Compensation Act* and the *Regulation*, including section 2.2 of the *Regulation*, which states "all work must be carried out without undue risk of injury or occupational disease."

Section 4.4(2)(a) permits the reliance on other standards which are acceptable to WorkSafeBC. WorkSafeBC will accept that a principal performer is not a diver required to meet the requirements of sections 24.10, 24.12, and 24.13 of the *Regulation* and that there is compliance with [section 2.2](#) where the following conditions are met:

1. An occupational diver who meets the requirements of *CSA Standard 275.4-97 Competency Standard for Diving Operations* assesses the ability of the principal performer to perform the required underwater shots, and considers the performer is competent to perform such underwater shots.
2. A dedicated occupational diver who meets the requirements of *CSA Standard 275.4-97* accompanies each principal performer at all times while the principal performer is underwater.
3. All performers involved in diving will be required to have a medical exam by a physician for sport diving. One of the Recreational Scuba Training Council forms such as PADI's Product No. 10063 (Rev. 06/15) Version 2.01 must be used. Medical exams are required every two years up to age 39 and annually from age 40 onwards. This signed form must be on site. No self-declared medical will be accepted.
4. All breathing mediums must meet the requirements of *CSA 7275.2 Occupational Safety Code for Diving*.
5. All sport diving (open water) certification for principal performers must be on site.
6. All dive logs for principal performers must be on site.



7. All support apparatus, accessories, and applicable service records must be available to workers on the dive site.
8. Only occupational dive tables are to be used.
9. A principal performer with only a valid recreational diver's (open water) certificate must not exceed 15 feet in depth.
10. A principal performer without a valid recreational diver's (open water) certificate must take an introduction to diving session (for example, PADI "Discover Scuba"), must not exceed 7 feet in depth, and must be under direct supervision of an occupational diver who meets the requirements of *CSA Standard Z275.4-97*.
11. The water time for a principal performer who is not certified and qualified as an occupational diver to the full requirements of the *Regulation* is limited to the time required to perform the underwater shot.

No variance is needed where the above conditions are met. If in other situations a variance is needed, a request should be submitted to WorkSafeBC at least 30 working days prior to the scheduled shooting days.

#### G24.13-1 Evidence of competency for scientific divers

Issued November 29, 2002; Editorial Revision April 2005; Editorial Revision February 25, 2013

#### Regulatory excerpt

Section 24.13 of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer and diving supervisor must ensure that all divers
  - (a) meet the minimum requirements of [\*CSA Standard Z275.4-97 Competency Standard for Diving Operations\*](#), and
  - (b) are competent to use the diving equipment that will be used in the diving operation.
- (2) A certified copy of competency documents for each diver must be available for inspection on site by an officer.

#### Purpose of guideline

This guideline explains what scientific diving is and the requirements for training for divers engaged in scientific diving.

#### Scientific diving

Clause 1.6 of *CSA Standard Z275.4-97* states:

This standard does not apply to scientific diving as defined in Clause 2.1.

Clause 2.1 of *CSA Standard Z275.4-97* defines scientific diving as:

Diving performed to collect specimens or data for scientific use, under the auspices of an educational or research institute operating in accordance with the Canadian Association of Underwater Science *Standard of Practice for Scientific Diving*.

Note: Scientific diving does not include diving conducted for construction, including excavation, salvage, demolition, destruction, maintenance, repair, or inspection of underwater structures, nor collection of organisms for consumption or commercial use.

A diver engaged in scientific diving (as defined above) under the auspices of an educational or research institute does not need to meet the minimum requirements of *CSA Standard Z275.4-97*. However, in order to qualify for and maintain this exemption, the diver and the diving operation must operate in accordance with the Canadian Association of Underwater Science (CAUS) *Standard of Practice for Scientific Diving* ("*CAUS Standard*"). This means the educational or research institute must be a member organization in good standing with CAUS and have in place the organizational requirements specified in the *CAUS Standard*.

On the date of publication of this guideline, WorkSafeBC is aware of the following member organizations belonging to CAUS that may have scientific diving operations within WorkSafeBC's jurisdiction:

University of British Columbia  
Vancouver Aquarium Marine Science Centre  
Bamfield Marine Station  
University of Victoria  
Simon Fraser University  
Royal BC Museum

#### Required documents

A diver engaged in scientific diving under the auspices of an educational or research institute must be able to produce for inspection by a WorkSafeBC prevention officer documentation of competency and authorization to dive from the institute. Such authorization must indicate the scientific diver's category, or diving competency level, as specified in the *CAUS Standard*. The authorization may be in the form of a letter or certificate issued by the institute's diving officer or an entry by the diving officer in the diver's personal logbook. The diver may only undertake scientific diving activities that are within the scope of the diver's current diving authorization as established by the institute.

An employer contracting with a member organization of CAUS to do scientific diving will only be considered to be working "under the auspices of an educational or research institute" if the employer's divers have authorization to dive from the institute and if the diving operation is undertaken in

accordance with and under the control of the institute's scientific diving program. Otherwise, the divers working for such a contract employer must meet the minimum requirements of *CSA Standard Z275.4-97 Competency Standard for Diving Operations* or other standard acceptable to WorkSafeBC, and be so certified.

There are reciprocity agreements between CAUS member organizations, so a scientific diver from one institute can go to another institute as a visiting diver and his/her scientific diving credentials may be recognized and accepted by the host institute, with minimal "inconvenience." Similar reciprocity agreements exist between CAUS and other associations, such as the U.S. equivalent of CAUS, the American Academy of Underwater Sciences. The visiting diver must supply appropriate documentation (such as personal logbook, medical clearance, and proof of equipment maintenance) to the host institute's diving officer. The host institute's diving officer must provide specific authorization for the visitor to dive under the institute's program.

A scientific diving operation under the auspices of an educational or research institute may involve personnel who are not workers covered by the *Workers Compensation Act* ("Act"), such as students, volunteers, or visitors. If one or more of the personnel involved in a scientific diving operation is a worker under the Act, the Act and the Regulation apply. Section 24.13 of the Regulation applies to all divers involved in a scientific diving operation — i.e., all of the divers must meet the requirements of the *CAUS Standard*. All other requirements of the Act and the Regulation must also be met in the diving operation.

If there is any conflict between a requirement in the *CAUS Standard* and the Regulation, the requirement of the Regulation prevails.

### **Recreational certification**

A recreational diver certification only, such as PADI (Professional Association of Diving Instructors) or NAUI (National Association of Underwater Instructors), is not a sufficient certification to meet the criteria of any of the scientific diver categories in the *CAUS Standard*.

#### **G24.13-2 Diver competency standards**

Issued November 23, 2005; Revised June 6, 2006; Editorial Revision July 9, 2009; Editorial Revision November 21, 2017; Editorial Revision August 22, 2022

### **Regulatory excerpts**

Section 24.13 of the *OHS Regulation* ("Regulation") states:

- (1) The employer and the diving supervisor must ensure that all divers
  - (a) meet the minimum requirements of *CSA Standard Z275.4-97 Competency Standard for Diving Operations*, and
  - (b) are competent to use the diving equipment that will be used in the diving operation.
- (2) A certified copy of competency documents for each diver must be available for inspection on site by an officer.

Section 4.4(2) of the Regulation states:

- (2) When this Regulation requires a person to comply with
  - (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or
  - (b) practices, procedures or rules of the Board or another agency, the person may, as an alternative, comply with another practice, procedure or rule acceptable to the Board.

### **Purpose of guideline**

This guideline

- Identifies an alternative standard to the *CSA Standard Z275.4-97*, under section 24.13(1)(a) that is acceptable to WorkSafeBC
- Lists agencies that certify divers to a competency standard that is acceptable to WorkSafeBC
- Discusses evidence of competency under section 24.13(2)

### **Background**

WorkSafeBC's authority to accept alternative standards falls under section 4.4(2) of the Regulation.

### **Alternative competency standard for diving**

*CSA-Z275.4-02 Competency Standard for Diving Operations* is a standard acceptable to WorkSafeBC that may be complied with as an alternative to *CSA Standard Z275.4-97 Competency Standard for Diving Operations* under section 24.13(1)(a).

### **Agencies that certify to a standard acceptable to WorkSafeBC**

The following agencies certify divers to a standard acceptable to the WorkSafeBC under section 24.13(1)(a):

1. **WorkSafeBC.** Divers who received a *WCB Seafood Harvesting Diver's Certificate* issued before January 1, 1998 are considered to be trained in the theory and use of the diving apparatus that the divers use in the fishing industry. These certificates are restricted to diving in the

fishing industry for the sole purpose of harvesting seafood product. They are not acceptable for any other form of commercial diving or for workers who have not been employed as divers in the seafood harvesting industry on a continuous annual basis. Certificates showing an expiry date are not valid.

2. **Diver Certification Board of Canada (DCBC).** A person may attend a school accredited by DCBC and receive a certificate issued by DCBC. The certificate must specify the expiry date to ensure competency and proficiency are reassessed as required. A list of these accredited training schools and other information related to diver certification can be found at [divercertification.com](http://divercertification.com)

The Department of National Defense also certifies divers to a standard acceptable to WorkSafeBC provided that the divers have work experience and bottom time comparable to that required by *CSA Standard Z275.4-97 Competency Standard for Diving Operations*.

The Health and Safety Executive (HSE) of the United Kingdom does not certify to a standard acceptable to WorkSafeBC under section 24.13(1) (a) of the *Regulation*. Occupational divers holding HSE diver training certificates who want to dive in British Columbia must contact [Certification Services](#) department of WorkSafeBC to have their diver qualifications evaluated.

For questions about whether a diver has been certified to a standard acceptable to WorkSafeBC, please contact WorkSafeBC's diving coordinator at (604) 276-3100.

### **Evidence of competency**

Competency documents that are required under section 24.13(2) include a certified copy of a valid diving certificate from one of the agencies listed above or other person or training agency found to be acceptable to WorkSafeBC. Employers may certify a copy of competency documents by making copies personally or comparing the copies with the originals, and then signing or initialing the copies to show this has been done. Copies may also be certified by a legal professional for presentation to a WorkSafeBC prevention officer.

#### **G24.17 Safe diving procedures**

Issued November 26, 2019

### **Regulatory excerpt**

Section 24.17 of the *OHS Regulation* ("Regulation") states:

- (1) Every employer engaged in diving operations must prepare and publish a set of safe diving procedures which include
  - (a) safe procedures and health requirements for each type of diving in which workers may be involved,
  - (b) all the procedures to meet the applicable requirements of this Regulation, and
  - (c) emergency, evacuation, and rescue procedures.
- (2) The safe diving procedures must be kept at the dive site, readily available to all workers, and available for inspection by an officer.

### **Purpose of guideline**

The purpose of this guideline is to clarify how first aid requirements must be considered as part of the emergency, evacuation, and rescue procedures.

### **First aid requirements**

In order to ensure safe diving procedures, first aid is a critical aspect. When considering occupational first aid requirements for worksites, the employer is responsible for conducting an assessment of the workplace in accordance with section 3.16(2) of the *Regulation*. In conducting this assessment, the employer should consider the high risk of injury involved in diving operations. It should be noted that section 3.3 of *CSA Standard Z275.4-97*, adopted under section 24.13(1)(a) of the *Regulation*, requires all divers to have up-to-date knowledge of, and be proficient in, CPR and basic first aid. This is in addition to the requirements for an occupational first aid attendant determined by an assessment.

### **Rescue**

Section 24.31 of the *Regulation* requires that a power rescue boat be available for immediate use in dive sites where divers are on floats. This allows the supervisor and the standby diver to respond to diving emergencies and to recover divers from the water when required.

Questions relating to diving operations may be directed to [Certification Services](#).

#### **G24.18 Diving supervisor qualifications**

Issued March 11, 2009

### **Regulatory excerpt**

Section 24.1 of the *OHS Regulation* ("Regulation") defines a "diving supervisor" as:

A person having complete and direct responsibility for the diving operation who is knowledgeable and competent with the diving equipment, the diving operations in progress, emergency diving procedures, diving physics and physiology and medical aspects of diving.

Section 24.18 of the *Regulation* (Diving supervisor's worksite duties) states:

- (1) Each diving operation must be directed by a diving supervisor whose duties include
  - (a) evaluating the hazards,
  - (b) planning the dive,
  - (c) briefing the crew,
  - (d) ensuring that all needed equipment is available and in good working condition, and
  - (e) controlling the entire diving operation.
- (f) Repealed. [B.C. Reg. 312/2003, effective October 29, 2003.]
- (2) The diving supervisor must prepare a detailed plan of the diving operations which must be given to the worksite employer before diving commences.
- (3) The diving supervisor must
  - (a) remain in the dive area during diving operations,
  - (b) delegate the supervisory responsibilities to another diving supervisor, if required to enter the water, and
  - (c) suspend diving operations if conditions become unsafe.

[Amended by B.C. Reg. 312/2003, effective October 29, 2003.]

#### **Purpose of guideline**

The purpose of this guideline is to clarify the minimum qualifications that diving supervisors will need to meet in order to be able to fulfill their responsibilities under [Part 24](#) of the *Regulation*.

#### **Duties of diving supervisors**

Section 24.18 of the *Regulation* sets out the core duties of diving supervisors. These include: evaluating the hazards, planning the dive, briefing the crew about a prescribed list of matters, ensuring that all needed equipment is available and in good working condition, controlling the entire diving operation, preparing a detailed plan of the diving operations, remaining in the dive area, delegating supervisory responsibilities to another diving supervisor if required to enter the water, and suspending diving operations if conditions become unsafe. Additional responsibilities of diving supervisors are set out in the remainder of Part 24 of the *Regulation*. For example, diving supervisors are required to:

- Be trained in cardio-pulmonary resuscitation ("CPR"), oxygen ("O<sub>2</sub>") therapy, and diving accident management (s. [24.12\(3\)](#))
- Ensure that all divers meet the minimum requirements of CSA *Standard Z275.4-97* (note: section 3.3 of the standard requires all personnel to have up-to-date knowledge of, and be proficient in, CPR and basic first aid) (s. [24.13\(1\)\(a\)](#))
- Be able to specify the equipment that divers are required to use (under various sections in Part 24 of the *Regulation*)
- Ensure that all divers are competent to use the diving equipment that will be used in the diving operation (s. [24.13\(1\)\(b\)](#))
- Keep and file a log of the diving operation, and verify and initial divers' personal logs (s. [24.14\(2\), \(4\), and \(5\)](#))
- Be satisfied that each diver understands the signals and procedures in use (s. [24.20\(1\)](#))
- Ensure that, if mixed gases in other than the normal proportions of respirable air are used for breathing by divers, the diving procedures, and schedules of work and decompression are in accordance with the recommendations of a competent authority, and prior written authorization has been received from WorkSafeBC (s. [24.26\(3\)](#))
- Ensure that the required rest periods following decompression are met (s. [24.51](#))
- Ensure that the required diving system procedures are followed (s. [24.57](#))
- Ensure that altitude diving operations are conducted in accordance with acceptable altitude diving tables (s. [24.62\(1\)](#))
- Ensure that all requirements relating to diving in contaminated environments are met (s. [24.66](#))

#### **Minimum required knowledge and competencies for diving supervisors**

In order to discharge the duties assigned to them under Part 24 of the *Regulation*, diving supervisors are required by section [24.1](#) to be knowledgeable and competent with the diving equipment, the diving operations in progress, emergency diving procedures, diving physics and physiology and medical aspects of diving.

- The diving equipment: a diving supervisor has a responsibility, under section 24.18(1) of the *Regulation*, to ensure that all needed equipment is available and in good working condition. This includes having competence in: all breathing apparatus, compressors, air or gas banks, gas transfer pumps, recompression chambers or pressure vessels for human occupancy, carbon dioxide ("CO<sub>2</sub>") scrubbing systems, submersible compression chambers, lock-out submersibles, as well as any decontamination system used for diving operations conducted in contaminated environments.
- The diving operations in progress: a diving supervisor is responsible, under section 24.18(1) of the *Regulation*, for evaluating the hazards, planning the dive and controlling the entire diving operation. In order to fulfill these responsibilities, a diving supervisor will need to be knowledgeable in matters such as: pressure differential conditions found in intakes or outlets, lockout, diving in contaminated environments,

bottom conditions, penetration diving to gain access to the worksite, currents, entrapment hazards, treatment tables when utilizing a chamber, and accepted occupational dive tables. (Note: certain diving operations may be subject to the requirements of [Part 9](#) of the *Regulation* relating to confined spaces. See OHS Guideline [G9.1-1](#) for further information). A supervisor also has a responsibility, under section [24.14](#) of the *Regulation*, to confirm and initial the entries in the divers' logs and to ensure that the details and events of the dive are recorded in the supervisor's log. Finally, in order to plan the dive, the diving supervisor will need to be able to determine and assign the correct decompression schedule taking into account repetitive dives, surface intervals, the altitude of the dive site, the breathing medium, and whether the workers will be flying after diving.

- Emergency diving procedures: this includes knowledge in, among other things: arterial gas embolisms, decompression illness or sickness, diving-related barotraumas, action on rapid ascent, loss of communications, lost diver situations, carbon monoxide and CO<sub>2</sub> poisoning, O<sub>2</sub> toxicity, omitted decompression, delays, emergency ascents, and flying after diving. Generally accepted emergency diving procedures are detailed in standard references such as the Defence and Civil Institute of Environmental Medicine Diving Manual and the U.S. Navy Diving Manual.
- Diving physics: a diving supervisor will need to have a proper understanding of the gas laws (Boyle's law, Charles' law, Dalton's law, Henry's law and Archimedes' Principle) and how they apply to or could affect the diving operation.
- Diving physiology and medical aspects of diving: this includes knowledge in human anatomy and physiological systems, as they relate to the medical aspects of diving and the evaluation of and response to diving emergencies.

In many cases, the qualifications needed for diving supervisors to properly discharge their duties under [Part 24](#) of the *Regulation* will only be attained by a combination of training, diving experience, and supervisory skills. For this reason, it is good practice for diving supervisors to meet CSA Standard Z275.4-97 *Competency Standard for Diving Operations*, which is adopted by section [24.13\(1\)\(a\)](#) of the *Regulation* in respect of divers, or the 2002 edition of that standard (referred to in OHS Guideline [G24.13-2](#)). The 2002 edition incorporates enhanced competency requirements for diving supervisors, including a mentoring and assessment process.

### Questions?

Questions about diving supervisor qualifications, and other questions relating to diving operations, may be directed to the [Certification Services](#).

#### G24.21 Diving tables

Issued September 1999; Editorial Revision April 2005; Editorial Revision February 25, 2013; Editorial Revision December 19, 2014

### Regulatory excerpt

Section 24.21(1) of the *OHS Regulation* ("*Regulation*") states:

- (1) Diving operations, repetitive dives, and treatment of divers, must be carried out in strict accordance with tables and procedures published or approved by the Defense and Civil Institute of Environmental Medicine (Canada).

Section 4.4 of the *Regulation* states, in part:

- (2) When this Regulation requires a person to comply with

...

- (b) practices, procedures or rules of the Board or another agency, the person may, as an alternative, comply with another practice, procedure or rule acceptable to the Board.

### Purpose of guideline

This guideline specifies an acceptable alternate table and procedure for diving operations, repetitive dives, and treatment of divers.

### Alternate diving table

WorkSafeBC has determined that the following table and procedure is an acceptable alternative to the Defense and Civil Institute of Environmental Medicine (Canada) tables and procedures referenced in section 24.21(1) of the *Regulation*:

1. Current United States Navy Decompression Tables and Procedures

### Mixed gas diving operations other than nitrox

The manager of Certification Services has the delegated authority to accept proprietary diving tables in mixed gas diving operations other than nitrox.

Section 24.26(3)(b) requires prior written authorization from WorkSafeBC before mixed gases other than nitrox are used. This written authorization is also obtained from [Certification Services](#). Refer to OHS Guideline [G24.26 Breathing mediums](#) for more information on submitting requests for prior authorization.

#### G24.25 Acceptable standards for hyperbaric chambers

Issued March 11, 2009

### Regulatory excerpt

Section 24.25 of the *OHS Regulation* ("*Regulation*") states:

Hyperbaric chambers must conform to standards acceptable to the Board and must be provided with

- (a) a means of extinguishing a fire,
- (b) an oxygen monitoring device,
- (c) an oxygen delivery system with a built-in breathing system (BIBS), and
- (d) an adequate supply of air, including an emergency reserve supply to complete any decompression and treatment procedures.

#### **Purpose of guideline**

The purpose of this guideline is to specify the standards that are considered acceptable for hyperbaric chambers under section 24.25 of the *Regulation*.

#### **Acceptable standards for hyperbaric chambers**

When encountering a hyperbaric chamber, WorkSafeBC officers may inspect the hyperbaric chambers for compliance with standards under section 24.25 of the *Regulation*. Acceptable standards, as they relate to hyperbaric chambers, for the purpose of section 24.25 include

- CSA-Z275.1-2005 *Hyperbaric Facilities*
- CSA-Z180.1-M85-2000 *Compressed Breathing Air and Systems*
- CSA B51-2003 *Boiler, Pressure Vessel, and Pressure Piping Code and B51S1-05 (Supplement #1)*
- ASME/ANSI PVHO-1 *Safety Standard for Pressure Vessels for Human Occupancy 2002 Edition*

#### **G24.26 Breathing mediums**

Issued September 1999; Revised October 23, 2009; Revised August 11, 2010; Editorial Revision June 30, 2021

#### **Regulatory excerpt**

Sections 24.26(3) and 24.26(4) of the *OHS Regulation* ("Regulation") state:

- (3) If mixed gases in other than the normal proportions of respirable air are used for breathing by divers, the diving supervisor must ensure that
  - (a) the diving procedures and schedules of work, and decompression are in accordance with the recommendations of a competent authority, and
  - (b) prior written authorization has been received from the Board to use mixed gases other than nitrox and that the authorization is kept on the dive site, available for inspection by an officer.
- (4) The following requirements apply to operations using nitrox mixes:
  - (a) procedures and mixes must be acceptable to the Board;
  - (b) all workers involved with nitrox diving must be trained in the procedures to a standard acceptable to the Board;
  - (c) proof of training and a copy of the operating procedures must be readily available at each dive site.

#### **Purpose of guideline**

The purpose of this guideline is to clarify what is required for obtaining prior authorization under section 24.26(3)(b) of the *Regulation*. The guideline also provides information about acceptable training for nitrox diving under section 24.26(4).

#### **Prior authorization**

The requirement for prior authorization from WorkSafeBC under section 24.26(3)(b) of the *Regulation* is additional to the requirement to submit a notice of project under [section 24.9](#).

Requests for prior authorization to use mixed gases other than nitrox must be submitted to [Certification Services](#). A complete submission will include the following information:

1. Gas mixtures to be used
2. Mixed gas qualifications for all divers and diving supervisors
3. Diving equipment to be used and reserve gas supplies
4. Identification of which diving tables and decompression procedures will be used
5. Description of support equipment including hyperbaric chamber facilities
6. Diver transportation
7. Emergency, evacuation and communication procedures
8. Copy of safe diving procedures

Mixed gas operations covered by section 24.26(3)(b) that have not been authorized by WorkSafeBC will be terminated immediately and appropriate orders written. However, the WorkSafeBC prevention officer must ensure that this will not jeopardize decompression requirements or



the safety of any diver.

#### **Acceptable procedures and training for nitrox mixes**

Section 24.26(4) requires that operations using nitrox mixes use procedures acceptable to WorkSafeBC. It also requires that workers involved in nitrox diving be trained in the procedures to a standard acceptable to WorkSafeBC. A list of agencies that offer courses on nitrox for SCUBA, surface supply diving, and gas blending acceptable to WorkSafeBC can be found at [Diver Certification Board of Canada Diving Training Providers](#).

Questions regarding other courses that WorkSafeBC may deem acceptable under section 24.26(4) should be directed to [Certification Services](#).

#### **G24.29 Gauges and meters**

Issued September 1999; Editorial Revision June 30, 2021

#### **Regulatory excerpt**

Section 24.29(1) of the *OHS Regulation* ("Regulation") states:

Gauges and meter equipment must be tested every 6 months or whenever a malfunction is detected, and errors found must be corrected without delay.

#### **Purpose of guideline**

The purpose of this guideline is to provide guidance on testing of gauges and meter equipment as required by section 24.29(1) of the *Regulation*.

#### **Testing**

Gauges used in diving operations must be checked against a master gauge every 6 months. The master gauge should be calibrated every 12 months by test, and the testing documented.

Gauge accuracy will be evaluated as follows

1. Measuring depths to 100 feet should have an accuracy within 1% of the maximum scale reading
2. Measuring depths from 100 feet to 600 feet should have an accuracy within 0.5% of the maximum scale reading
3. Measuring other conditions, for example pressure, should have an accuracy within 2.5% of the actual condition being measured

Periods of storage are not included in determining the time at which calibration should occur.

#### **G24.36 Minimum dive crew for scuba diving**

Issued April 9, 2009; Revised November 26, 2019

#### **Regulatory excerpt**

Section 24.36 of the *OHS Regulation* ("Regulation") states:

- (1) A minimum crew of 3 workers must be present on each dive site if the dive will
  - (a) not exceed 18 m (60 ft) in depth, and
  - (b) remain within the no-decompression limit, and
  - (c) be made where it is known there is no hazard of entrapment.
- (2) When using the buddy system, a minimum of 2 divers must be present, and a third person must stay on the surface as a supervisor/tender.
- (3) When using lifelines, floats or audio communication with the surface,
  - (a) a standby diver and a supervisor/tender must be on the surface, and
  - (b) a tender must tend only one scuba diver unless the divers are on floats, or have lifelines and effective 3-way voice communication, in which case the tender may tend 2 divers.
- (4) When a dive does not meet the requirements of subsection (1), then
  - (a) a standby diver and a supervisor/tender must stay on the surface, and
  - (b) if not using the buddy system, a single diver must be tethered and carry a bailout bottle.

#### **Purpose of guideline**

The purpose of this guideline is to clarify the minimum crew requirements that apply to each dive site for scuba diving operations.



### Minimum crew requirements

The minimum crew requirements for each dive site for scuba diving operations are set out in detail in section 24.36 of the *Regulation*. All of the following factors affect the minimum number of workers required in a dive site, as well as the specific roles and responsibilities of each member of the crew (refer to OHS Guideline G24.18):

- The depth of the dive
- The type of breathing apparatus used
- The environmental conditions present (e.g., severe weather, contaminated environment)
- The type of work conducted
- Whether the duration of the dive will remain within the no-decompression limit
- Whether there are any hazards present
- Whether equipment such as lifelines, floats, or audio communication will be used

For scuba diving operations, section 24.36(1) of the *Regulation* requires a minimum crew of three workers if the dive will not exceed 18 m (60 ft.) in depth, will remain within the no-decompression limit, and is made where it is known there is no hazard of entrapment. Additional obligations apply if the dive does not meet those requirements (section 24.36(4)). Further requirements apply when the buddy system or lifelines, floats, or audio communication with the surface are used (sections 24.36(2) and (3)). It should be noted that the use of scuba is prohibited for some diving operations ([section 24.37](#) restrictions on scuba).

### What constitutes a dive site

The minimum crew requirements prescribed by the *Regulation* apply to each dive site. A "dive site" is defined, in section 24.1 of the *Regulation*, as follows:

Any location where a diving operation takes place including a boat, scow, float, raft or platform which is seaworthy, secure, and of sufficient size to safely accommodate all workers and equipment without overcrowding.

Two vessels employed by either the same firm or two different firms may constitute a single dive site if they are either tied alongside each other or working together in close proximity. Two vessels will generally be considered to be sufficiently close to each other if an effective rescue can be conducted. To allow for an effective rescue, unless the two vessels are tied alongside each other, the standby diver will need to be located on the same vessel as the diving supervisor, and be free to maneuver and render emergency assistance when required. It is important that the boat operator be sufficiently competent to respond to diving emergencies.

A dive site can also be a location on a shoreline, in a river, in open water, or within a structure such as a pump house or water reservoir.

### Questions?

Questions relating to diving operations may be directed to [Certification Services](#).

#### G24.37 Restrictions on scuba

Issued September 1999; Editorial Revision June 30, 2021

### Regulatory excerpt

Section 24.37(1) of the *OHS Regulation* ("Regulation") states:

Scuba must not be used in underwater construction, burning, welding, salvage operations, demolition, jetting and suction dredging or other diving operations in which the diver

- (a) may be entrapped,
- (b) does not have free access to the surface,
- (c) may be exposed to a contaminated environment, or
- (d) could be adversely affected by hazardous underwater or surface work activities or conditions which could be alleviated if the diver were using surface supplied air.

### Purpose of guideline

The purpose of this guideline is to clarify section 24.37(1) of the *Regulation*.

### Application

Section 24.37(1) does not prevent the use of scuba in all operations involving underwater construction, burning, welding, salvage, demolition, jetting and suction dredging. It is only restricted to those operations where one of section 24.37(1)(a) to (d) applies.

#### G24.40 Minimum crew requirements

Issued October 28, 2019

### Regulatory excerpt

Section 24.40 of the *OHS Regulation* ("*Regulation*") states:

- (1) For each diving operation where planned dives do not exceed 40 m (130 ft) or the no-decompression limits, and where there are no hazards present, a minimum dive crew of 3 workers must be present, one of whom must be a diver's supervisor/tender, one a diver and one a standby diver on the surface unless the standby is permitted by section 24.33(3) to serve as a standby in the water.
- (2) If the planned dive exceeds 40 m (130 ft), or the no-decompression limits, or there are hazards present, the dive crew must consist of a minimum of 4 workers: a diving supervisor, a diver's tender and 2 divers, one of whom must be a standby diver on the surface.

### **Purpose of guideline**

The purpose of this guideline is provide some examples of the types of hazards that should be evaluated before a planned dive to determine the minimum crew requirements. The examples are non-exhaustive; hazards may exist that are not listed below.

### **Discussion**

Due to the nature and circumstances of most planned dives, the minimum number of workers required on a dive crew is usually four. As described in section 24.40(1), the only time a dive crew may consist of three workers is when the dive does not exceed either 40 m (130 ft.) or the no-decompression limits, and where there are no hazards present.

When hazards are present during a dive the potential for an emergency situation increases. If the standby diver must enter the water, having two crewmembers on the surface will be needed to implement emergency procedures, including communication needs and to ensure the safe retrieval of both divers from the water.

### **Hazards**

Section 24.18(1)(a) of the *Regulation* states that each diving operation must be directed by a diving supervisor whose duties include evaluating the hazards.

Environmental hazards that should be evaluated include, but are not limited to, the following:

- The strength of the current at the dive site
- The degree of underwater visibility
- The level of difficulty in access and egress from the dive site
- Likelihood of entanglement with underwater objects

Work process hazards that should be evaluated include, but are not limited to, the following:

- Underwater construction activities
- Use of power tools
- Use of a crane
- Underwater welding/cutting
- Underwater blasting

### **Examples**

- Company A is planning a dive to retrieve several tools dropped in the river, which is anticipated to be a quick and simple task. The diving supervisor performs an evaluation of the hazards prior to the dive and determines the current is strong and there is low visibility. Despite the simplicity of the work being performed, the dive crew must include a minimum of four workers due to the environmental hazards present.
- Company B is planning underwater construction on a bridge. The diving supervisor confirms there are no environmental hazards, but notes that the work involves underwater cutting, including the use of various power tools. Despite the good environmental conditions, the crew must be a minimum of four workers due to the work process hazards present.
- Company C is replacing an anchor chain for a mooring system. The worksite location is less than 40m, has good visibility with minimal current, and is within no-decompression limits. The task does not require the use of a crane or power tools, and does not involve welding. In these conditions where no hazards are present, Company C could safely have a dive crew of three.

As these examples demonstrate, hazards are often identified in pre-dive evaluations and a four person crew will be necessary. Having a minimum crew requirement ensures that the required number of workers per the *Regulation* are present in case of an emergency.

#### **G24.43 Surface supply diving – Compressors**

Issued September 1999; Editorial Revision December 15, 2017

### **Regulatory excerpt**

Section 24.43 (Compressors) of the *OHS Regulation* ("*Regulation*") states:

Compressors used to supply air to divers must be

- (a) capable of maintaining a supply of air equal to at least double the volume of air required,

(b) capable of developing pressure at least 25% greater than the anticipated pressure requirement, and

(c) automatic in operation.

### **Purpose of guideline**

The purpose of this guideline is to reference the helmet manufacturer's instructions for the compressor in use to meet the required air supply for both diver(s) and standby diver(s). Compressors must be capable of maintaining the helmet manufacturer's recommended volume of air and air pressure. They must operate automatically to maintain a constant pressure in the volume tank or air receiver at twice the volume required and be capable of developing pressure at least 25% greater than the anticipated pressure requirement.

There are two basic types of surface supply equipment used by divers: free-flow and demand regulators. Each type will require a different volume of breathing gas supply.

The volume of surface supplied air required for a diver will increase with increases in the diver's depth (called the diver's ambient pressure) and is expressed in atmospheres absolute. (Depth + 33 divided by 33 = diver's depth in atmospheres absolute.)

### **Free-flow equipment volumes**

Diving operations that employ free-flow helmets and masks should have flow volumes according to the manufacturer's specifications – if not specified then of at least 6 actual cubic feet per minute (acfm) per diver. This volume is needed to ventilate the diver's helmet/mask of any carbon dioxide (CO<sub>2</sub>) as a result of the diver's expired air. (The diver's inspired air should not exceed 2% CO<sub>2</sub>). To calculate the volume of air for a free-flow mask/helmet at any depth, the following equation should be used:

$$R = 6 \times Pa \times N$$

R = required ventilation rate in acfm (actual cubic feet per minute)

6 = the 6 cubic feet per minute per diver

Pa = The absolute pressure at working depth (expressed in atmospheres absolute)

N = The number of divers to be supplied at the working depth

Example:

What is the acfm required for two divers using lightweight free flow diving helmets in 66 feet seawater? (66 feet of depth equals 3 atmospheres absolute)

$$R = 6 \times Pa \times N$$

$$R = 6 \text{ acfm} \times 3 \text{ atmospheres absolute (divers' depth)} \times 2 \text{ divers} = 36 \text{ acfm}$$

$$R = 36 \text{ acfm (doubled as required by section 24.43 (a) of the Regulation)} = 72 \text{ acfm}$$

### **Demand type equipment volumes**

Diving operations that use demand type equipment will require less volume than the free-flow type; follow the manufacturer's specifications – if not specified then use a minimum of 3.2 acfm. A diver's air requirement will vary with the demands of the work level. The rate at which air is consumed in a system may be significantly lower than the peak inhalation flow rate. However, the air supply must be able to meet the greatest demand and the manufacturer's requirements.

Example:

The acfm required for two divers using Hooka gear diving in 66 feet of seawater (fsw). (The second diver may be the standby diver on the surface).

$$R = 3.2 \times Pa \times N$$

$$R = 3.2 \text{ acfm} \times 3 \text{ atmospheres absolute} \times 2 \text{ divers} = 19.2 \text{ acfm}$$

$$R = 19.2 \text{ acfm} \times 2 \text{ (doubled as required by section 24.43 (a) of the Regulation)} = 38 \text{ acfm}$$

Where a manufacturer specifies greater volumes than 3.2 acfm, that number should be used in the equation in place of 3.2.

- All calculations for volume should be based on the deepest depth of dive
- Compressor pressure requirements of section 24.43(b) of the *Regulation* must be met
- System volume tank should be large enough to maintain a steady supply as specified in section 24.44 of the *Regulation*.

Reference materials:

US Navy Diving Manual (1993 edition)

## Pressure

Section 24.43(b) of the *Regulation* states "Compressors used to supply air to divers must be...capable of developing pressure at least 25% greater than the anticipated pressure requirement."

The diver's air supply system must be capable of delivering sufficient breathing air to the diver at a pressure that overcomes the water pressure at the diver's working depth plus a 25% safety factor in the event of a sudden descent below the planned working depth.

An additional factor is pressure loss inherent in any surface supplied diving system; for example, resistance through valves, regulators, and hose lengths. Usually an additional 10 pounds per square inch (psi) should be added to any total. Where more than 400 feet of hose is used, then another 10 psi should be added.

Calculations for pressure requirements are completed in absolute pressures, so 14.7 psi is added to any pressure requirements, to give pounds per square inch absolute (psia).

There are two types of surface supplied diving equipment: free-flow and demand. Each has different pressure requirements.

### Free-flow equipment pressure requirements

Divers using "free flow type" air masks or diving helmets to depths of 120 feet should have a minimum pressure of 64.7 psia over the diver's ambient pressure. When diving over 120 feet, the pressure should be increased to 114.7 psia over the diver's ambient pressure.

To calculate the pressures required to supply breathing air to a diver using free-flow equipment in less than 120 fsw, use this formula:

$$Ps = ((0.445 \times D) + 64.7 + Pi) \times 1.25$$

Ps = Air pressures required to support a diver at a given depth using free-flow equipment

D = diver's depth in fsw

$$64.7 = 50 \text{ psi} + 14.7 \text{ psi} = \text{the absolute pressure (64.7 psia)}$$

Pi = add 10 psi for pressure losses in the system (20 psi if hose is over 400 feet)

25% = safety factor required by section 24.43(b) of the *Regulation*

Example 1: A dive to 100 fsw.

$$Ps = ((.445 \times 100) + 64.7 + 10) \times 1.25 = 149 \text{ psi required.}$$

Example 2: A dive to 130 fsw

$$Ps = ((.445 \times 130) + 114.7 + 10) \times 1.25 = 228 \text{ psi required}$$

(114.7 psi is the absolute hose pressure (100 psi + 14.7 psi) when diving over 120 fsw)

### Demand type equipment pressure requirements

For helmets and masks using demand regulators with oral nasal fittings or scuba regulators, the pressures required are much higher. The minimum pressures should be not less than 135 psi over bottom pressure. (Add 14.7 to 135 = 149.7 psia.) The formula to calculate compressor pressures required to supply over bottom pressures for demand type helmets and Hooka is as follows:

$$Ps = ((.445 \times D) + 149.7 \text{ psia} + Pi) \times 1.25$$

Example 1:

A diver working to a depth of 60 fsw

$$Ps = ((.445 \times 60) + 149.7 + 10) \times 1.25 = 233 \text{ psi required}$$

Example 2.

A diver working to a depth of 130 fsw

$$Ps = ((.445 \times 130) + 149.7 + 10) \times 1.25 = 272 \text{ psi is required}$$

Some dive equipment manufacturers recommend even higher over bottom pressures to reduce breathing resistance at the second stage regulator. In this case follow manufacturer's recommendations.

Consideration of the operating parameters are not restricted to the air compressor and the helmet. The employer and divers should be familiar with

the entire life support system from air compressor to the helmeted diver to ensure adequate flow and pressure is provided to the diver, in addition to the regulatory requirement of twice the required volume calculated with a 25% greater anticipated pressure.

#### G24.69 Fishing operations - Application

This guideline has been moved, see [G24.1-1: Fishing vessel - Definition](#).

#### G24.70 Compliance with Standards

Issued February 3, 2005; Revised March 1, 2019; Revised July 15, 2019; Editorial Revision consequential to December 1, 2021 Regulatory Amendment

#### Regulatory excerpt

Section 24.70 of the *OHS Regulation* ("Regulation") states:

All fishing vessels must

- (a) be maintained in seaworthy condition, and
- (b) be built in accordance with the applicable regulations under the *Canada Shipping Act, 2001*.

#### Purpose of guideline

Transport Canada is responsible for the regulations that govern the construction and seaworthiness (stability) of large and small fishing vessels. The applicable regulations are the *Large Fishing Vessel Inspection Regulations* (LFVIR) and the *Fishing Vessel Safety Regulations* (FVSR).

The purpose of this guideline is to outline the definition of seaworthy and to provide information on assessing vessel stability.

#### Seaworthy

For the purposes of section 24.70(a) of the *Regulation*, the following definition of "seaworthy" from Kerchov's International Maritime Dictionary (2nd Edition) applies:

The sufficiency of a vessel in materials, construction, equipment, crew and outfit for trade or service in which it is employed...

Determining seaworthiness involves consideration of a number of factors, including the following:

- Construction, structure, and stability of the vessel
- Machinery and equipment on the vessel
- Load being carried and its distribution on the vessel
- Place or places to which the vessel will be voyaging
- Weather and sea conditions that the vessel is likely to encounter

Standards for the construction of fishing vessels fall under the jurisdiction of Transport Canada.

#### Vessel stability – owner and master responsibilities

The responsibility for ensuring the vessel continues to possess stability characteristics that render it seaworthy under all anticipated sailing conditions rests with the vessel owner. The vessel owner should limit vessel operations so that the vessel is not operated in conditions that would render it unstable. In addition, the owner should undertake any necessary vessel modifications to ensure no workers are put at risk by the possibility of the vessel becoming unstable during anticipated or reasonably foreseeable operating conditions. A vessel owner is also responsible for ensuring that documentation describing vessel stability characteristics is readily available to crewmembers on board the vessel (refer to [section 24.72\(b\)](#) of the *Regulation*).

The vessel master is responsible for ensuring that the fishing vessel is capable of safely making the voyage planned, with due consideration being given to the seaworthiness and stability of the vessel (refer to section 24.76 of the *Regulation*). The master should refer to the vessel stability documentation provided by the owner.

#### Assessing vessel stability

Standards and requirements for vessel stability are under the jurisdiction of Transport Canada. Two sets of regulations that apply depending on the size of the vessel include the following:

1. [Large Fishing Vessel Inspection Regulations](#) – apply to vessels larger than 24.4 metres and 150 gross tons, and those vessels up to 24.4 metres and 150 gross tons engaged in the herring and capelin fisheries.
2. [Fishing Vessel Safety Regulations](#) – apply to vessels not more than 24.4 metres in length and not more than 150 gross tonnage.

According to these regulations vessel stability characteristics must be evaluated and understood prior to the vessel's first voyage. In addition, re-evaluation of a vessel's stability characteristics may be necessary where major modifications are made to the vessel (refer to OHS Guideline G24.71).

It is also important to note that vessel stability characteristics will also change over the life of the vessel. The accumulation of weight over the life of

the vessel, such as the cumulative addition of equipment, will likely cause a vessel to get heavier and its centre of gravity to rise, decreasing its stability. Even the gradual accumulation of dirt and paint may, over time, create a negative impact on stability.

There are two primary methods for assessing vessel stability: roll period tests and inclining experiments.

It is recommended that Transport Canada be consulted in order to obtain complete information on conducting vessel stability tests.

#### a) Roll period tests

A roll period test determines the length of time it takes a heeled vessel to right itself. The vessel is heeled and its progress to complete one full roll cycle is timed. Changes to a vessel's roll period are a rough way of evaluating whether the vessel's stability is degrading. Providing the vessel has not undergone any appreciable modifications or alterations, roll period tests should be undertaken at least every four years as a means to monitor changes to the vessel through its lifetime. If roll period times are increasing over the life of the vessel, it is an indication of the vessel becoming increasingly unstable and that further assessment of the vessel's stability should be undertaken.

It should be stressed that whether roll period tests are effective as a rough method of evaluating the stability of a given vessel will depend on the hull design and other characteristics of the vessel. Roll period tests are likely to be of limited use for vessels with hard chines or flat bottom hulls, for example.

#### b) Inclining experiments

Inclining experiments are far more rigorous and informative than roll period tests and are used to accurately measure the vertical height of the vessel's center of gravity above the keel. Due to their complexity, inclining experiments, and their associated calculations, must be performed in accordance with appropriate vessel stability criteria as established by Transport Canada.

An inclining experiment consists of moving one or more large weights across the vessel and measuring the resulting angle of heel. Once the experiment has been completed, a detailed set of calculations is performed to determine the vessel's lightship (i.e., unloaded) weight and centre of gravity. These calculations, in turn, can be used to determine the vessel's operational limitations and will be used to determine the vessel's stability characteristics under a range of operating and environmental conditions.

#### c) Vessels of open construction

The stability of a vessel of open construction (currently defined by Transport Canada as a vessel that has less than 50 percent of its length covered, full width, by decks or permanent enclosures or as defined in the *Canada Shipping Act, 2001* or associated regulations) relies primarily on the maintenance of adequate freeboard (being the distance between the water and the gunwale of the vessel). In addition, inclining experiments are not designed to assess stability characteristics of a vessel of open construction. As a result, such vessels should be provided with a means of quickly assessing during the vessel's operation whether the vessel is capable of maintaining adequate freeboard. The purpose is to provide a guide to the vessel master and crew with respect to loading limits under various operating and environmental conditions. The means of evaluating freeboard should be created in accordance with a formal stability assessment of the vessel.

A common method of evaluating freeboard is the use of a load mark. Where a load mark is used as the method of evaluating freeboard, the load mark should be permanently affixed to the vessel so that it is visible through any paint or hull finish treatment, and it should be affixed to the vessel in sufficient locations so that the maximum load can be determined at any trim angle.

#### G24.71 Owner and master responsibilities – Major modifications

Issued February 3, 2005; Revised March 1, 2019; Revised July 15, 2019

##### **Regulatory excerpt**

Section 24.71(2) of the *OHS Regulation* ("Regulation") states:

- (2) The owner must ensure that major modifications to a fishing vessel do not adversely affect the stability of the vessel.

##### **Purpose of guideline**

The purpose of this guideline is to set out the definition of a major modification as provided in the [Fishing Vessel Safety Regulations](#) (FVSR) and refer the owner of a fishing vessel to Transport Canada to ensure major modifications do not adversely affect vessel stability.

##### **Major modification**

According to the FVSR, a major modification "means a modification or repair, or a series of modifications or repairs, that substantially changes the capacity or size of a fishing vessel or the nature of a system on board a fishing vessel, that affects its watertight integrity or its stability."

##### **Stability assessment**

Owners should refer to the FVSR and information provided by Transport Canada for guidance on the requirements for reassessing vessel stability following major modifications.

#### G24.72 Documentation

Issued February 3, 2005; Revised March 1, 2019

**Regulatory excerpt**

Section 24.72 of the *OHS Regulation* ("Regulation") states:

The owner of every fishing vessel must provide documentation on board, readily available to crewmembers, which describes

- (a) engine room instructions,
- (b) vessel characteristics, including stability,
- (c) the location and use of firefighting equipment, and
- (d) the location and use of emergency equipment, including radio equipment.

**Purpose of guideline**

The purpose of this guideline is to provide further explanation of the documentation referred to in section 24.72(b) of the *Regulation*.

**Vessel characteristics**

Under section 24.72(b), the owner must give notice of unique features of the vessel which might not otherwise be known to a new master and crew and which might cause hazards in certain situations if the boat is not properly handled. This includes instructions on how to perform operations on the vessel without impairing its stability and seaworthiness.

This guideline sets out what information should be set out in the on-board documentation, required under section 24.72(b) of the *Regulation*, with respect to description of vessel stability characteristics.

**Content of on-board documentation**

It is imperative that on-board documentation provides meaningful and detailed information with respect to vessel characteristics, and in particular vessel stability.

On-board documentation should accurately reflect the vessel's typical loading condition and modes of operation, and the effect on the vessel's stability of such factors as the following:

- Stowage and placement of equipment and cargo
- Use of on-board cranes or other hoisting equipment
- The effect of and limits to side loading operations
- Towing of nets, skiffs or other vessels
- Gear deployment and retrieval practices
- Weather and sea conditions

With respect to trap vessels, which have specific risks because they often carry large weights up high which can adversely affect the vessel's stability, on-board documentation should specify the maximum number and size of traps carried; as well as their stowage location and configuration during transport, while fishing under the various anticipated loading and operating conditions.

The documentation should clearly state that it is unsafe for the vessel to sail if it is loaded outside of its stability limitations.

The documentation describing the stability characteristics of the vessel must be presented in a format that is readily understandable by the vessel's master and crew.

It is recommended that Transport Canada Marine be consulted in order to obtain complete information on creating on-board stability documentation.

**G24.76 Vessel preparation**

Issued February 3, 2005; Retired March 1, 2019

This guideline is retired as the information is covered in other areas of the *Regulation* and guidelines.

**G24.77 Reporting injuries**

Issued March 1, 2019

**Regulatory excerpt**

Section 24.77 of the *OHS Regulation* ("Regulation") states:

- (1) Crewmembers must report all injuries to the master, without delay.
- (2) The master must report to the owner of the fishing vessel all injuries that required medical aid and record all injuries in the vessel log book.

Section 3.19 of the *OHS Regulation* ("Regulation") states:



- (1) The employer must maintain at the workplace, in a form acceptable to the Board, a record of all injuries and exposures to contaminants covered by this Regulation that are reported or treated.
- (2) First aid records must be kept for at least 3 years.
- (3) First aid records are to be kept confidential and may not be disclosed except as permitted by this Regulation or otherwise permitted by law.
- (4) First aid records must be available for inspection by an officer of the Board.
- (5) Workers may request or authorize access to their first aid records for any treatment or report about themselves.

**Purpose of guideline**

This guideline is to clarify that keeping a dual set of first aid records is not required.

**Record keeping**

Section 3.19 provides for keeping first aid records. This section must be complied with to the extent it is consistent with section 24.77, which requires the master to report injuries requiring medical aid to the owner and record all injuries in the vessel log book. Provided that all the information required by section 3.19 (refer to OHS Guideline [G3.19](#)) is recorded and accessible, the vessel log book can be considered the first aid record. Therefore, it is not necessary to keep a separate set of first aid records.

**G24.84 Protection from falling**

Issued March 1, 2019

**Regulatory excerpt**

Section 24.84 of the *OHS Regulation* ("Regulation") states:

- (1) Crewmembers must be protected from falling overboard by means of grabrails, siderails, handrails, guardrails or personal fall protection equipment.
- (2) Crewmembers working aloft or on deck during adverse weather conditions must tie off to a lifeline to prevent falling.

**Purpose of guideline**

The purpose of this guideline is to clarify fall protection requirements as applied to fishing vessels.

**Falling overboard**

Section 24.84(1) is intended to stop workers from falling overboard. In applying this section, consideration is given to the particular needs of fishing operations. Guardrails need not be installed in places where they will interfere with the work process. However, if another method of preventing workers from falling overboard is practicable in this situation, it must be used.

**Falling from a height**

Section 24.84(2) is intended to prevent workers from falling from a height onto a deck. Crewmembers are "aloft" for the purposes of this section when they are more than 3 metres (10 feet) above the lowest deck to which a fall may occur. The rails and fall protection equipment required by section 24.84 need not conform with the requirements contained in Part 11 of the *Regulation*. They must, however, effectively restrain workers from falling or arrest a fall that has occurred. In the case of fall protection equipment, it is not sufficient to tie a rope around the body. A suitable harness or belt must be used.

**G24.85 Deck openings**

Issued March 1, 2019

**Regulatory excerpt**

Section 24.85 of the *OHS Regulation* ("Regulation") states:

- (1) Deck openings and hatches on a fishing vessel must be
  - (a) equipped with an effective means of securing them, and
  - (b) closed and secured when it is not essential to the fishing operation that they be open.
- (2) When deck openings and hatches are required to be open for ventilation or other purposes, they must be marked and guarded.

**Purpose of guideline**

The purpose of this guideline is to provide clarification regarding the requirements for marking and guarding deck openings on fishing vessels.

**Marked and guarded**

Deck openings and hatches are considered "guarded" if a system exists that will warn crewmembers or places a physical barrier to entry. This could include lines in the right places with red flags tied to them. The "guard" does not have to be capable of physically preventing the crewmember

from access.

Deck openings need not be marked and guarded when opened for short periods to gain access and egress. It is only required where the hatch will remain open for a prolonged period or may result in a hazard.

#### G24.86 De-energization

Issued March 1, 2019

##### **Regulatory excerpt**

Section 24.86 of the *OHS Regulation* ("*Regulation*") states:

- (1) The maintenance and repair of machinery or equipment on board a fishing vessel must only be carried out when the power source has been de-energized and effectively secured to prevent inadvertent startup.
- (2) If it is essential that equipment remain operational during the maintenance process, the master must establish a procedure to prevent injury from contact with moving or energized parts.
- (3) The main engine must be shut off whenever a diver is conducting work underwater in proximity to the vessel.

##### **Purpose of guideline**

The purpose of this guideline is to provide clarification regarding maintenance and de-energization on board a fishing vessel.

##### **Maintenance**

"Maintenance" under section 24.86 has the same meaning as in Part 10 of the *Regulation*, which requires that machinery be "locked out" for maintenance. Maintenance is defined in section 10.1 of the *Regulation* as follows:

work performed to keep machinery or equipment in a safe operating condition, including installing, repairing, cleaning, lubricating and the clearing of obstructions to the normal flow of material

Section 24.86 requires that de-energization be "effectively secured." Part 10 of the *Regulation* outlines the various options available to effectively de-energize machinery and describes how to ensure safe procedures if equipment must remain operational during the maintenance process.

#### G24.90 Ventilation

Issued March 1, 2019

##### **Regulatory excerpt**

Section 24.90 of the *OHS Regulation* ("*Regulation*") states:

All crew spaces on fishing vessels must be provided with an adequate supply of fresh air either by passive or mechanical means.

##### **Purpose of guideline**

The purpose of this guideline is to identify possible ventilation issues as applied to fishing vessels.

##### **Ventilation**

It is important to prevent oxygen deficiency or a buildup of carbon monoxide inside the vessel when windows and doors are closed and any devices such as heaters and engines are running.

#### G24.97(1) Acceptable standards for immersion suits

Issued February 11, 2009; Revised December 14, 2012; Editorial Revision July 23, 2014; Editorial Revision November 21, 2017; Editorial Revision March 1, 2019

##### **Regulatory excerpt**

Section 24.97(1) of the *OHS Regulation* ("*Regulation*") states:

Every fishing vessel must carry, for each crewmember, one immersion suit meeting standards acceptable to the Board.

##### **Purpose of guideline**

The purpose of this guideline is to specify acceptable standards for immersion suits under section 24.97(1) of the *Regulation*.

##### **Acceptable standards for immersion suits**

Under section 24.97(1) of the *Regulation*, every fishing vessel must carry one immersion suit for each crewmember. These immersion suits are required to meet a standard acceptable to WorkSafeBC, and be of a suitable size and fit for each crewmember. The following are acceptable standards:

1. [The International Maritime Organization's \*International Life-Saving Appliances Code \(LSA Code\)\* \(2010 edition\)](#)

2. [Underwriters Laboratories' UL 1197 Immersion Suits, 3rd edition \(2007\)](#)
3. [The International Standards Organization's ISO 15027-2002 - Immersion Suits](#)
4. [Transport Canada's TC 14475E Canadian Life Saving Appliance Standard, First Edition, March 2010](#)

In cases where immersion suits do not meet any of the above standards, an application needs to be made to WorkSafeBC's Prevention Practice, Quality, and Engineering department to determine if the immersion suits meet an acceptable alternate standard.

### **Proper maintenance**

Immersion suits should be regularly maintained and inspected to ensure they are in proper working order. This includes the inspection of seals to check their integrity, and the inspection for leaks. An immersion suit which has not been properly maintained or is no longer able to meet the requirements of any of the standards listed above is not considered to meet a standard acceptable to WorkSafeBC. This is the case even where the immersion suit was marked as meeting one of the above standards when manufactured.

### **G24.100 Ozone safe work practices**

Issued March 1, 2019

### **Regulatory excerpt**

Section 24.100 of the *OHS Regulation* ("Regulation") states:

The owner of a fishing vessel must ensure that ozone generating equipment is installed and operated in accordance with standards acceptable to the Board.

### **Purpose of guideline**

The purpose of this guideline is to outline the standard acceptable to WorkSafeBC for the use of ozone on fishing vessels.

### **Safe work practices**

Ozone is considered a toxic process gas and as such Part 6, [sections 6.117 to 6.132](#) will apply. For further information regarding acceptable safe work practices refer to the WorkSafeBC publication [Ozone Safe Work Practices](#) (BK47).