

# *Occupational Diving Work Code of Practice 2005*

Workplace Health and Safety Queensland

Department of Justice and Attorney-General



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## Important information about this code of practice

1. The code was made on 13 April 2005.
2. The code commenced on 1 May 2005.
3. The code was amended on 28 April 2006 and 5 December 2008.
4. The code expires 10 years after it commenced.

## What is this code of practice about?

The purpose of the *Occupational Diving Work Code of Practice* is to give practical advice about ways to manage exposure to risks identified as typical when conducting occupational diving work.

## Workplace health and safety obligations and the *Workplace Health and Safety Act 1995*

The *Workplace Health and Safety Act 1995* places obligations on certain persons to ensure workplace health and safety. Workplace health and safety is ensured when persons are free from death, injury or illness (and the risk of death, injury or illness) caused by workplaces, relevant workplace areas, work activities or plant or substances for use at a workplace. Ensuring workplace health and safety involves identifying and managing exposure to the risks at your workplace.

## How can I meet my obligations?

‘Under the Act, there are three types of instruments to help you meet workplace health and safety obligations – regulations, ministerial notices and codes of practice.

If there is a regulation or ministerial notice about a risk, you **must** do what the regulation or notice says.

If there is a code of practice about a risk, you **must** either:

- (a) do what the code says
- (b) do all of the following:
  - adopt and follow another way that gives the same level of protection against the risk
  - take reasonable precautions
  - exercise proper diligence.

If there is no regulation, ministerial notice or code of practice about a risk, you must choose an appropriate way to manage exposure to the risk and take reasonable precautions and exercise proper diligence to ensure that your obligations are met.

## Note

There may be additional risks at your workplace, which have not been specifically addressed in this code of practice. You are required under the Act to identify and assess these risks and ensure that control measures are implemented and reviewed to prevent or minimise exposure to these risks.

This code offers advice on how the occupational diving industry can make occupational diving a healthier and safer activity. The advice relates to:

- persons that conduct a business or undertaking
- employers
- self-employed persons
- workers

The occupational diving covered in this code is where a person conducting a business or undertaking, including an employer or self-employed person conducts occupational diving as part of his or her undertaking. **Persons conducting a business or undertaking, employers and self-employed persons will from here on be collectively referred to as persons conducting a business or undertaking.**

This code of practice also includes provisions from the *Workplace Health and Safety Regulation 2008* in so far as they apply to the control measures outlined in this document. For clarification, these provisions are presented in boxed sections.

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# Meaning of some terms used in the code

**Bottom time:** The time between a diver leaving the surface at the start of a dive and starting the final ascent.

**Construction diving work:** See appendix 1 for the definition of construction diving work. appendix 2 contains sections of the *Workplace Health and Safety Regulation 2008* relevant to construction diving work only.

**Dive time:** The time between a diver leaving the surface at the start of a dive and surfacing at the end of the dive.

**Diving first aid:** A current qualification received for training in:

- first aid and emergency oxygen administration to injured divers
- training in diving accident management
- field clinical assessment.

**Occupational diving work** includes all underwater diving work other than recreational or recreational technical diving work.

Note: other occupational diving work is occupational diving work other than construction diving work.

**Repetitive dive group/pressure group** means a letter of the alphabet, given by dive tables, that represents an estimate of the amount of residual nitrogen in a diver's tissues immediately on surfacing at the end of a dive.

**Repetitive factor/pressure group at end of surface interval:** A letter of the alphabet, given by dive tables, that represents an estimate of the amount of residual nitrogen in a diver's tissues as determined by the repetitive dive group and the surface interval.

**Residual nitrogen:** Nitrogen in excess of the amount normally present in a person's tissues that is dissolved in the person's tissues.

**Surface interval:** The time a diver spends at the surface between dives.

**Time in:** The time a diver leaves the surface at the start of a dive.

**Time out:** The time a diver surfaces at the end of a dive.

**Underwater diving work:** Section 147 of the *Workplace Health and Safety Regulation 2008* states:

<p><b>'Underwater diving work</b> means work conducted underwater while breathing compressed gas.</p>
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# 1. Risk from certain medical conditions

Sections 149 and 150 of the *Workplace Health and Safety Regulation 2008* apply to all underwater diving work. These sections of the regulation require persons conducting a business or undertaking, or someone on their behalf, to view the worker's current certificate of medical fitness to dive. The employer must ensure any work carried out by the worker is within any limits stated in the certificate. A person conducting a business or undertaking, doing underwater diving work must have a current certificate of medical fitness to dive and any work carried out by the person must be within any limits stated in the certificate. A person conducting a business or undertaking, doing underwater diving work must have a current certificate of medical fitness to dive and any work carried out by the person must be within any limits stated in the certificate.

## **149 Requirements about certificate of medical fitness to dive**

- (1) A relevant person must not:
  - (a) do underwater diving work unless subsection (2) is complied with
  - (b) allow a worker to do underwater diving work unless subsection (2) is complied with.
- (2) For subsection (1):
  - (a) the relevant person must hold an original or copy of a certificate of medical fitness to dive that appears to be current:
    - (i) for subsection (1)(a)—for the relevant person
    - (ii) for subsection (1)(b)—for the worker
  - (b) the work the relevant person or worker is to do must not be contrary to any limitations on diving stated in the certificate.
- (3) The relevant person must keep the certificate or copy for at least 1 year after the certificate stops being current.
- (4) Subsections (1) and (3) are workplace health and safety obligations for the act.
- (5) In this section:

**current** for a certificate of medical fitness to dive means—

  - (a) the certificate is not replaced or revoked and has not expired, and
  - (b) is not more than 1 year old.

Persons conducting a business or undertaking who perform higher risk diving profiles should ensure that the diving medical practitioner is aware of these profiles. The dive medical practitioner may recommend higher levels of screening in these cases.

Examples of higher risk diving profiles include profiles that routinely involve:

- decompression stop diving
- multiple ascents
- dives below 30m
- decompression using gases other than air.

Persons who conduct a business or undertaking should request that workers advise them of any conditions which are contraindications to diving.

Persons who conduct a business or undertaking and workers with these conditions should not dive. Examples of contraindicated conditions are colds, hay fever, ear infections and hangovers.

## 2. Competence to perform occupational diving work and undertake the risk assessment process

Sections 151 to 158 of the *Workplace Health and Safety Regulation 2008* apply to all occupational diving work. These sections of the regulation define different ways in which competence must be demonstrated for a diver to undertake occupational diving work and to undertake the risk assessment process in Section 160. Only the option in Section 152 may be used for construction diving work.

The options are:

### **152 Meaning of competent person for construction diving work**

A person is a **competent person** for construction diving work if the person holds an ADAS diving certificate under which the diving involved in the work may be done.

### **153 Meaning of competent person for other underwater diving work**

(1) A person described in any of the following sections is a **competent person** for underwater diving work other than construction diving work:

- (a) section 154
- (b) section 155(1) or (2)
- (c) section 156
- (d) section 157

(2) However, section 157 does not apply in relation to the use of the words 'competent person' in section 160(2) or 161(2)(b).

### **154 Competent person for s 153—holder of ADAS diving certificate for the diving**

For section 153, the person is the holder of an ADAS diving certificate under which the diving involved in the underwater diving work may be done.

### **155 Competent person for s 153—holder of certification under Australian Qualifications Framework**

(1) For section 153, the person is the holder of a statement of attainment from a registered training organisation in relation to training that:

- (a) is relevant in a substantial way to the work
- (b) is provided within the registered training organisation's scope of registration.

(2) For section 153, the person:

- (a) is the holder of a statement of attainment from a registered training organisation in relation to training in performing diver rescues:
  - (i) that includes the elements of competency mentioned in subsection (3):
  - (ii) that is provided within the registered training organisation's scope of registration:
- (b) has acquired through training, qualifications or experience, the knowledge and skills mentioned in the elements of competency and performance criteria in AS 2815, parts 1 to 4 relevant to the underwater diving work.

*Editor's note:*

AS 2815 (Training and certification of occupational divers), parts 1 (Occupational SCUBA diver— Standard), 2 (Air diving to 30m), 3 (Air diving to 50m) and 4 (Bell diving)

- (3) For subsection (2)(a)(i), the elements of competency are as follows:
- (a) demonstrate knowledge of diver physiology
  - (b) demonstrate diver rescue skills
  - (c) use supplemental oxygen.

**156 Competent person for s 153—holder of certificate for AS 4005.2 subject areas**

For section 153, the person:

- (a) is the holder of a certificate showing that the person has successfully finished training in the subject areas mentioned in AS 4005, part 2 from a recreational scuba training organisation

*Editor's note:*

AS 4005 (Training and certification of recreational divers), part 2 (Recreational SCUBA dive supervisor)

- (b) has acquired through training, qualifications or experience, the knowledge and skills mentioned in the elements of competency and performance criteria in AS 2815, parts 1 to 4 relevant to the underwater diving work.

**157 Competent person for s 153—person doing underwater diving work on no more than 28 days in the last 6 months**

(1) For section 153, the person is someone who:

- (a) is a person mentioned in subsection (2) or (3)
- (b) is being personally supervised in the water by a person who:
  - (i) is a competent person for construction diving work
  - (ii) is described in section 154, 155(1) or (2) or 156
- (c) has acquired, through training, qualifications or experience the knowledge and skills to do the work in a safe way, including a sound knowledge of the following:
  - (i) the application of diving physics
  - (ii) the use of diving equipment, including emergency equipment
  - (iii) the use of decompression tables or dive computers
  - (iv) ways of communicating with a diver during underwater diving work
  - (v) how to safely perform underwater diving work of the same type as the underwater diving work
  - (vi) the use, inspection and maintenance of diving equipment and air supply of the same type that is being used for the underwater diving work
  - (vii) diving physiology and first aid
  - (viii) provisions of the Act, this regulation or AS/NZS 2299, part 1 relevant to the underwater diving work.

(2) For subsection (1)(a)—

- (a) the person has done no underwater diving in the 6 months immediately before the underwater diving work is done
- (b) before that 6 months, the person has spent at least 15 hours doing underwater diving, of which at least 8 hours 20 minutes were spent within a depth of 10m above or below the maximum depth at which the underwater diving work is being done.

(3) Alternatively for subsection (1)(a):

- (a) the person has done underwater diving work on no more than 28 days in the 6 months immediately before the underwater diving work is done

- (b) at any time, the person has spent at least 15 hours doing underwater diving, of which at least 8 hours 20 minutes were spent within a depth of 10m above or below the maximum depth at which the underwater diving work is being done.

In determining the most appropriate competency option, the person conducting the business or undertaking should review the occupational diving work and ensure that the competency option selected is relevant to the work. Issues to consider should include:

- the diving environment
- the diving equipment and breathing gas to be used
- the decompression schedule to be used
- the tasks to be undertaken
- any tools to be used
- any other hazards associated with the task.

### 3. Proof of competency for underwater diving work

Sections 159 and 170 of the *Workplace Health and Safety Regulation 2008* require proof of competency for all occupational diving work. These sections state:

#### **159 Proof of competency**

- (1) This section applies to underwater diving work other than construction diving work.
- (2) A relevant person must not:
  - (a) do underwater diving work unless subsection (3) is complied with
  - (b) allow a worker to do underwater diving work unless subsection (3) is complied with.
- (3) For subsection (2):
  - (a) the relevant person must hold proof that the relevant person or worker is a competent person for the work
  - (b) the work the relevant person or worker is to do must not be contrary to any restrictions stated in the proof of competency.
- (4) The relevant person must keep the proof of competency for at least 1 year after the work done under subsection (2) in reliance on the proof of competency ends.
- (5) Subsections (2) and (4) are workplace health and safety obligations for the act.

#### **170 ADAS diving certificate for the diving is required**

- (1) A relevant person must not:
  - (a) do construction diving work unless subsection (2) is complied with
  - (b) allow a worker to do construction diving work unless subsection (2) is complied with.
- (2) For subsection (1):
  - (a) the relevant person must hold an original or copy of an ADAS diving certificate for the following persons, under which the diving involved in the work may be done:
    - (i) for subsection (1)(a)—the relevant person
    - (ii) for subsection (1)(b)—the worker
  - (b) the work the relevant person or worker is to do must not be contrary to any

restrictions stated in the certificate.

- (3) The relevant person must keep the certificate or copy for at least 1 year after the work done under subsection (1) in reliance on the certificate or copy ends.
- (4) Subsections (1) and (3) are workplace health and safety obligations for the act.

## 4. Risk assessment process to be carried out for all occupational diving

Section 160 of the *Workplace Health and Safety Regulation 2008* applies to all occupational diving work. This section of the regulation requires that a risk assessment process (the process) be undertaken by a competent person prior to undertaking occupational diving work. The section states:

### **160 Process to be carried out before work starts**

- (1) This section applies to underwater diving work to be done by a relevant person.
- (2) Before the work starts, the relevant person must ensure that the process under subsection (the *process*) is carried out by a competent person for the underwater diving work.  
Maximum penalty—30 penalty units.
- (3) The process is:
  - (a) identify the hazards associated with the work
  - (b) assess the risk of death, illness or injury that may result because of the hazards
  - (c) decide on and implement control measures to prevent, or minimise the level of, exposure to the risks.
- (4) The assessment of risk must take into account
  - (a) the level of competence in underwater diving of the person who is to do the work
  - (b) each factor mentioned in AS/NZS 2299, part 1, appendix D, paragraph D2.4.
- (5) In deciding on the control measures, the hierarchy of control measures mentioned in AS/NZS 2299, part 1, appendix D, paragraph D3.2(a) to (f) must be taken into account.

*Editor's note:*

- AS/NZS 2299 (Occupational diving operations), part 1 (Standard operational practice), appendix D (Hazard identification, risk assessment and control), paragraph D2.4 (Factors for consideration)
- AS/NZS 2299 (Occupational diving operations), part 1 (Standard operational practice), appendix D (Hazard identification, risk assessment and control), paragraph D3.2 (Control measures)

The factors mentioned in AS/NZS 2299, part 1, appendix D2.4 form a list of hazards that may or may not be present. Each factor should be considered, and an assessment made of the risk. The list is not exclusive and all other hazards not otherwise identified should be considered in the risk assessment.

The process of risk assessment is described in more detail in the *Risk Management Code of Practice*.

The factors mentioned in AS/NZS 2299, part 1, appendix D paragraph 2.4 are:

- **Environmental conditions:** certain parameters should be examined for their effects on the dive from the perspective of operations both on the surface and below, including, but not limited to:

strength and direction of wind and the degree of influence that it may have on the diving operation and emergency response capability:

- current and tide
  - visibility
  - entrapment hazards
  - depth at worksite
  - water temperature
  - time of day
  - underwater terrain
  - atmospheric temperature and humidity
  - contaminants
  - isolation of the dive site.
- **Task related factors:** the complexity of the diving task or the presence of a component which is non-routine in nature may increase the level of risk associated with a diving operation.
  - **Hyperbaric/physiological factors:** hyperbaric and physiological factors include:
    - frequency of diving, including repetitive diving, multi-day diving
    - depth of dive
    - duration of dive
    - breathing gas
    - exertion required to reach dive site or conduct task
    - excessive noise
    - immediate pre-dive fitness (prior dives, prior physical exertion, fatigue, recent illness)
    - altitude exposure.
  - **Associated activity factors:** the effects of associated activity factors should be assessed. These associated activities include:
    - manual handling
    - boat handling
    - dive platforms
    - crane operation
    - rigging.
  - **Other hazards:** presence of other hazards such as the following should be taken into account:
    - dangerous marine animals
    - shipping movements
    - water inlets
    - hazards peculiar to the dive locations
    - use or presence of hazardous substances, biological pollutants or explosives.
  - **Emergency response factors:** there should be an assessment of what would be required in case of an emergency. The assessment should include consideration of:
    - the location and availability of appropriate emergency systems
    - emergency response procedures.

Once the risks have been assessed, the competent person should decide on and implement control measures to prevent or minimise the level of exposure to the risks. In deciding on the control measures, the hierarchy of control measures mentioned in AS/NZS 2299, part 1, appendix D paragraph 3.2 must be taken into account.

This appendix states:

Appropriate control measures should be applied to risks, using the hierarchy of controls in the following order:

- **Elimination:** where the level of risk cannot be controlled to an acceptable level, no diving should take place.
- **Substitution:** where the risk can be controlled by performing the task using alternative methods of diving, consideration should be given to using these alternative methods.
- **Design:** plant and procedures should be designed to minimize risk.
- **Isolation:** persons should be isolated from the identified hazards.
- **Administrative:** every dive plan should seek to minimize the degree and duration of the diver's exposure to risk.

Note: Almost every aspect of dive planning falls into this administrative category.

Administrative controls include:

- training, supervision, experience and selection of employees, including staffing levels
- provision of an appropriate diving operations manual
- organisation and planning before, during and after the dive
- selection of appropriate plant
- selection of the appropriate form and level of communication.
- **Personal protective equipment:** appropriately designed and sized personal protective equipment should be provided, used and maintained. The limitations of all equipment used should be identified as part of the risk assessment process. Information from manufacturers and from records of prior experience should be used to identify limitations.

In selecting any control measures, with particular reference to the administrative controls described in section (e), appropriate standards should be used.

Specific controls for construction diving work can be found in sections 170 - 176 of the *Workplace Health and Safety Regulation 2008*. These can be found in appendix 2.

Examples of appropriate standards that describe control measures in detail include:

- AS/NZS 2299 Occupational Diving Operations - Part 1 Standard Operational Practice
- AS/NZS 2299 Occupational Diving operations - Part 2 Scientific Diving
- AS 3848 Filling of Portable gas cylinders - Part 2 Filling of portable cylinders for self contained underwater breathing apparatus (SCUBA) and non underwater self contained breathing apparatus (SCBA) - safe procedures.

The following are specific controls measures for certain risk areas associated with occupational diving, which should be adopted and followed by persons engaged in a business or undertaking for occupational diving work.

## 4.1 Risk to divers from vessels that are underway

Divers associated with vessels that are underway are at risk, both of injury and damaging their equipment. This risk is highest for divers using surface supply breathing apparatus. A person conducting a business or undertaking should prevent or minimise this risk by adopting appropriate control measures.



Examples of control measures are:

- propeller guards for relevant vessels
- ensuring the master and relevant crew of any vessel is appropriately qualified and experienced
- ensuring divers are equipped with appropriate emergency breathing supplies and knives
- using buoys or markers to separate diving activity from vessel activity
- using appropriately sized and displayed flags to indicate diving activity and appropriate lights at night (Note: this control measure is only effective where the flag or lights are displayed where diving is taking place, not just in the vicinity)
- ensuring relevant surface workers maintain a watch for approaching vessels and are part of a communications system to allow contact to be made with the approaching vessel in a timely manner
- adopting systems of work to minimise or eliminate the chances of these injuries occurring.

## 4.2 Equipment required for occupational diving

Persons conducting a business or undertaking for occupational diving work should use appropriate standards in the selection and use of equipment for occupational diving.

The appropriate standard for equipment for construction diving work is AS/NZS 2299 Occupational Diving Operations - Part 1 Standard Operational Practice, sections 3.6, 3.8, 3.12, 5.4, 5.6, 5.7, 5.8, 6.4 and 6.5.

An appropriate standard for equipment for other occupational diving work should be selected and used. Appropriate standards for other occupational diving work are:

- AS/NZS 2299 Occupational Diving Operations - Part 1 Standard Operational Practice
- AS/NZS 2299 Occupational Diving operations - Part 2 Scientific Diving
- *Pearl Diving Industry Code of Practice* - Pearl Producers association of WA.

## 4.3 Breathing gas quality

Persons conducting a business or undertaking for occupational diving work should use appropriate standards to ensure breathing gas quality for occupational diving.

The appropriate standard for breathing gas quality for occupational diving work is AS/NZS 2299 Occupational Diving Operations - Part 1 Standard Operational Practice, section 3.13.

## 4.4 Decompression management

Persons conducting a business or undertaking for occupational diving work should use appropriate standards to manage the risk of decompression illness for occupational diving.

The appropriate standard to manage the risk of decompression illness for construction diving work is AS/NZS 2299 Occupational Diving Operations - Part 1 Standard Operational Practice, Appendix F.

An appropriate standard to manage the risk of decompression illness for other occupational diving work should be selected and used consistently and conservatively. Appropriate standards for other occupational diving work are:

- AS/NZS 2299 Occupational Diving Operations - Part 1 Standard Operational Practice, Appendix F
- AS/NZS 2299 Occupational Diving operations - Part 2 Scientific Diving, section 3.14
- where the level of risk is similar to that of recreational diving or recreational technical diving, then any dive tables approved by a scuba training organisation
- any dive computer used in accordance with the manufacturers instructions.

Persons conducting a business or undertaking for occupational diving work should ensure that factors that may predispose a diver to developing decompression illness are minimised. The factors are:

- severe exercise during or after decompression
- poor physical fitness and obesity
- water temperature, for example cold water and hot showers
- dehydration
- increased carbon dioxide pressures
- alcohol intake
- physical injury
- dive profiles
- rapid and multiple ascents
- repetitive and multi day diving
- altitude exposure.

## 4.5 Emergency plans

Persons conducting a business or undertaking should ensure dive sites have a written emergency plan to deal with emergency situations. These emergency plans should be made readily available to all relevant workers who should be familiar with these plans. Situations covered by written emergency plans should include:

- first aid
- rescue
- evacuation, including evacuation to the nearest recompression facility
- missing persons.

## 4.6 Rescue of a diver

Persons conducting a business or undertaking should ensure effective and efficient rescue and resuscitation procedures have been developed. In the development of these procedures, consideration should be given to the following factors:

- Size, type and location of the dive site.
- Appropriateness of rescue procedures to the dive site.
- Adequacy of the communication system so that clear messages and information can be relayed to the appropriate personnel, with the minimum of delay.
- Location of rescuers and their skills and fitness levels. Rescuers should have knowledge and skills in diving and in the management of diving related incidents, injuries and illness. They should also have a level of fitness so their own health and safety are not compromised, and be dressed and equipped so they are ready to enter the water quickly, and
- Availability, locality and appropriateness of any rescue equipment such as rescue boards, tenders, flotation devices and ropes. Any rescue vessels or equipment should be maintained in a ready condition and positioned so they can be used to reach a diver in distress with the minimum of delay.

## 4.7 First aid and oxygen provision

Persons conducting a business or undertaking should ensure:

- A first aid kit is available at the dive site. The contents of this kit should be sufficient to cater for the injuries that may occur. Consideration also should be given to the number of divers, distance from emergency services and the nature and type of underwater diving which is being undertaken.
- A person on the surface at the dive site should hold current training in diving first aid.
- An oxygen system capable of providing a spontaneously breathing person with an inspired oxygen concentration of as near as possible to 100% is available at the dive site. The equipment should also facilitate oxygen enriched artificial ventilation of a non-breathing person. The person/s administering the oxygen should have received training in the correct use of the system.
- Oxygen equipment and oxygen levels are checked daily by a person who has received training to carry out the checks correctly. Any other maintenance of the oxygen system should be carried out by an authorised service agent, and
- Sufficient oxygen is available to supply the injured person, taking into account the location of the dive site and access to medical facilities.

## 5. Administration of the risk assessment process

Sections 161, 163 and 164 of the *Workplace Health and Safety Regulation 2008* apply to all occupational diving work. These sections of the regulation require certain administration of the risk assessment process (the process) described in section 160. The sections require that

the process be carried out each time that there is a significant change to the occupational diving work, that certain records are kept, some training is undertaken and that the process is monitored and reviewed. The sections state:

**161 Process to be carried out each time there is a significant change**

- (1) This section applies if the process has been carried out under section 160(2).
- (2) Each time there is a change mentioned in subsection (3), the relevant person:
  - (a) if the work has started—must ensure that the work stops immediately
  - (b) must not start or restart the work, or allow the work to start or restart, unless a competent person for the underwater diving work, who is out of the water, has carried out the process again.

Maximum penalty—30 penalty units.

- (3) For subsection (2), the change is:
  - (a) a significant change in the way the work is to be done from the way the underwater diving work was to be done when the process was last carried out for the work
  - (b) a significant adverse change in the environmental conditions affecting the diving from the conditions prevailing when the process was last carried out for the work.

*Examples of adverse changes in environmental conditions—*

- reduced underwater visibility resulting from work tasks disturbing sediment
- increased current and surge action

**163 Record to be kept for each time process is carried out**

- (1) This section applies if the process has been carried out under section 160(2) or section 161(2).
- (2) The relevant person must ensure that a written record is made of the following for the process before the underwater diving work is started or restarted or is allowed to start or restart:
  - (a) the date the process is carried out
  - (b) the date the work is to start or restart and end
  - (c) the work
  - (d) the location of the dive site
  - (e) the name of each person at the dive site who will be involved in the work
  - (f) each hazard identified
  - (g) for each hazard identified—the assessment of the risk of death, illness or injury that may result because of the hazard
  - (h) each control measure decided on.

Maximum penalty—30 penalty units.

- (3) The relevant person must:
    - (a) make the written record of the process available for inspection, out of the water at the dive site, by anyone involved in the work
    - (b) keep the record for at least 1 year after the last day it is used for the work.
- Maximum penalty—30 penalty units.

**164 Control measure to be in place and monitored and reviewed**

- (1) This section applies if a control measure (an *original control measure*) is implemented under this subdivision for a risk.
- (2) The relevant person who implemented the original control measure must ensure

that, while the risk exists:

- (a) the original control measure is kept in place
- (b) a different control measure necessary to prevent, or minimise the level of, exposure to the risk is implemented and kept in place.

Maximum penalty—30 penalty units.

- (3) The relevant person who implemented the original control measure must monitor and review the effectiveness of:

- (a) the original control measure
- (b) a different control measure implemented under subsection (2)(b).

Maximum penalty—30 penalty units.

The person conducting a business or undertaking should ensure that there is adequate supervision to ensure control measures are implemented and kept in place.

## 6. Training of workers about the risk assessment process

Section 162 of the *Workplace Health and Safety Regulation 2008* applies to all occupational diving work. This section of the regulation requires workers to read and understand the record made of the risk assessment process (the process). The section states:

### **162 Work not to start or restart unless diver has read, understood and signed record of process**

- (1) This section applies if the process has been carried out under section 160(2) or section 161(2).
- (2) The relevant person must not start or restart the underwater diving work unless the relevant person and each of the relevant person's workers doing underwater diving work:
  - (a) has read and understood the record of the process made under section 163
  - (b) signed an acknowledgement, on the record, that the relevant person or worker has read the record.

Maximum penalty—30 penalty units.

All relevant workers, including non-divers associated with the occupational diving such as vessel masters, should understand the control measures decided upon before diving commences.

Developing documented work procedures that incorporate the control measures will assist in this process. This should take the form of an appropriate operations manual. However separate work procedures may be needed for specific tasks, equipment or conditions.

AS/NZS 2299.1 Appendix E provides advice on the structure of a diving operations manual.

To assist the understanding of workers, a system of training should be developed.

For occupational diving, a training program should include:

- induction training for new workers
- site and/or task specific training (a dive site brief to reinforce key risks and control measures)
- ongoing review and training (to assess and maintain worker's understanding).

The nature of occupational diving work lends itself to practical as well as theoretical training, for example rescue drills.

Appropriate records should be made of training that includes the date, the training undertaken, the trainer and trainee's names.

## 7. Dive safety logs

Sections 165 to 169 of the *Workplace Health and Safety Regulation 2008* apply to all occupational diving work. These sections require that certain records be kept of the diving undertaken. These records assist in decompression management and provide a tool to monitor and review the occupational diving work.

### **165 Dive safety log—log must be kept**

- (1) A relevant person must ensure that a dive safety log is kept about each dive done by the relevant person or a worker of the relevant person doing underwater diving work.

Example of dives for which information must be recorded in a dive safety log kept by a relevant person who is an individual:

a dive by a worker or by the relevant person

Maximum penalty—30 penalty units.

- (2) The dive safety log must be written and comply with section 166.

### **166 Dive safety log—required information about dives**

- (1) The dive safety log must state the following information:

- (a) the diver's name
- (b) the name of any diver with whom the dive is done
- (c) the name of any dive supervisor
- (d) the date and location of the dive
- (e) time in
- (f) time out
- (g) maximum depth of the dive
- (h) any incident, problem, discomfort or injury experienced or suffered by the diver
- (i) if the dive was done using a dive computer—the dive time
- (j) if the dive was done using dive tables—the repetitive dive group, if available, and either bottom time or dive time
- (k) if the repetitive dive group and surface interval result in a repetitive factor—the surface interval and the repetitive factor.

- (2) If the underwater diving work is done using EANx, the dive safety log must also state the following information:

- (a) oxygen content of the EANx
- (b) maximum operating depth for the EANx.

- (3) If the underwater diving work is done using mixed gas, the dive safety log must also state the following information:

- (a) oxygen content and nitrogen content, if any, of the mixed gas
- (b) maximum operating depth for the mixed gas
- (c) minimum operating depth of the bottom mix.

- (4) The information mentioned in this section must be entered in the dive safety log as

soon as practicable.

**167 Dive safety log—diver must sign log**

- (1) On completion of each dive in relation to which a dive safety log must be kept, the diver must verify the diver's return from the dive:
  - (a) by signing the dive safety log entry for the diver
  - (b) if the log is kept electronically—by entering in the log entry the name of, and a unique identifier for, the diver.

Example of a log kept electronically:  
a record kept by computer

Maximum penalty—10 penalty units.

- (2) The signature or entry must be made as soon as practicable.

Example—

The diver's signature in the dive safety log is an important check on whether a diver has returned to the boat. Accordingly, the signature needs to be made as soon as the diver has removed necessary gear and dried the diver's hands. However, conditions in open boats, or numerous dives by the 1 diver in a single day, may make it impracticable to sign the dive safety log until the end of the diver's diving for the day.

**168 Dive safety log—further signing of log**

- (1) The relevant person must ensure that a person verifies for the relevant person, in the way stated in subsection (2), that:
  - (a) the dive safety log entry for the diver has been made as required under section 165
  - (b) the diver has complied with section 167 for the entry.

Maximum penalty—20 penalty units.

- (2) The way is:

- (a) by signing the log entry
- (b) if the log is kept electronically—by entering in the log entry the name of, and a unique identifier for, the person.

- (3) The signature or entry must be made as soon as practicable.

**169 Dive safety log—log to be kept for at least 1 year**

The relevant person must keep the dive safety log required under this subdivision for at least 1 year after the last entry in it is made.

Maximum penalty—20 penalty units.

## 8. Diver's log

Occupational divers should complete a divers log for their own records. The divers log should include:

- date of dive
- operation number of the dive, that is sequential numbering of each of the dives for any one day
- location and nature of dive site, for example boat or shore diving
- environmental conditions at the dive site
- time in
- time out
- maximum depth of the dive
- bottom time
- the decompression tables followed by the diver

- any emergency or incident of special note which occurred during the dive, for example failure of diving equipment or emergency decompression
- any discomfort or injury suffered by the diver
- depth and duration of safety stop.

# Appendix 1

## 148 Meaning of construction diving work

- (1) **Construction diving work** means underwater diving work to assemble, construct, demolish, dismantle, install, clean, inspect, maintain, remove, repair, salvage, sample, search for, photograph, film, video or make a sound recording of a thing, or part of a thing, mentioned in subsection (2).
- (2) For subsection (1), the things are as follows:
  - (a) a building
  - (b) a bridge
  - (c) a pile or a structure supported by piles
  - (d) a jetty, pontoon, wharf, mooring or slipway
  - (e) a navigational aid
  - (f) a pipe, cable or tunnel
  - (g) scaffolding, whether or not for use with a building
  - (h) a drilling rig
  - (i) an oil or gas well platform
  - (j) a weir or the structure or machinery of a dam or other artificial water storage, other than a swimming pool or aquarium
  - (k) a craft or vehicle for use in, on or above water or land.
- (3) **Construction diving work** includes underwater diving work associated with dredging, reclamation of land or other earthworks.
- (4) However, **construction diving work** does not include underwater diving work:
  - (a) for inspecting, sampling, photographing, filming, videoing or making a sound recording:
    - (i) for the entertainment or publishing industry
    - (ii) for tourism
    - (iii) for the print or electronic media
    - (iv) for art
    - (v) for genuine scientific research
    - (vi) for scientific management of natural resources  
Example of subparagraph (vi):  
scientific management of the Great Barrier Reef or fish stocks
  - (b) for inspecting, sampling, photographing, filming, videoing or making a sound recording of:
    - (i) an artefact to decide its cultural heritage significance under the *Queensland Heritage Act 1992*
    - (ii) an historic relic or historic shipwreck under the *Historic Shipwrecks Act 1976* (Cwlth)
  - (c) for photographing, filming, videoing or making a sound recording while and for the purpose of conducting recreational diving or recreational technical diving, or training to go recreational diving or recreational technical diving
  - (d) for photographing, filming, videoing or making a sound recording of persons doing recreational diving or recreational technical diving if the photographing, filming, videoing or sound recording is to be used for a souvenir
  - (e) done in a marina or the ocean for cleaning, inspecting, maintaining or searching for a vessel or mooring solely or mainly used in the tourism industry.  
Examples of vessels used in the tourism industry—
    - glass bottom boats used for tours of a reef

- boats used to transport tourists to a reef or island
- yachts hired to sail around islands
- fishing charter boats

(5) It is immaterial whether or not a thing mentioned in subsection (2) is floating or wrecked.

# Appendix 2

## Construction diving work regulations

### **Subdivision 5 - Provisions relating only to construction diving work**

#### **170 ADAS diving certificate for the diving is required**

- 4 A relevant person must not:
  - (a) do construction diving work unless subsection (2) is complied with
  - (b) allow a worker to do construction diving work unless subsection (2) is complied with.
- 2 For subsection (1):
  - (c) the relevant person must hold an original or copy of an ADAS diving certificate for the following persons, under which the diving involved in the work may be done:
    - (i) for subsection (1)(a)—the relevant person
    - (ii) for subsection (1)(b)—the worker
  - (d) the work the relevant person or worker is to do must not be contrary to any restrictions stated in the certificate.
- 3 The relevant person must keep the certificate or copy for at least 1 year after the work done under subsection (1) in reliance on the certificate or copy ends.
- 4 Subsections (1) and (3) are workplace health and safety obligations for the act.

#### **171 Dive supervisor**

- (1) A relevant person must not:
  - (a) do construction diving work unless subsection (2) is complied with
  - (b) allow a worker to do construction diving work unless subsection (2) is complied with.
- (2) For subsection (1):
  - (a) someone must have been appointed as the dive supervisor for the work or for the dive site where the work is to be done (the **dive supervisor**)
  - (b) the dive supervisor must:
    - (i) hold an ADAS diving certificate under which the diving involved in the work may be done
    - (ii) personally supervise the work from a position out of the water at the dive site
    - (iii) be able to communicate directly with each diver being supervised.
- (3) A dive supervisor may supervise more than 1 diver at the same time.
- (4) Subsection (1) is a workplace health and safety obligation for the act.

#### **172 Stand-by diver**

- (1) A relevant person must not:
  - (a) do construction diving work unless subsection (2) or (3) is complied with
  - (b) allow a worker to do construction diving work unless subsection (2) or (3) is complied with.
- (2) For subsection (1):
  - (a) someone must have been appointed as stand-by diver for the work or for the dive site where the work is to be done (the **stand-by diver**)

- (b) the stand-by diver must
  - (i) be allowed under sections 149 and 170 to make the dive
  - (ii) hold an ADAS diving certificate under which the diving involved in the work may be done
  - (iii) be out of the water
  - (iv) be under the supervision of the dive supervisor
  - (v) be fully equipped and otherwise ready to dive to go to the rescue of the diver doing the work
  - (vi) be available to rescue the diver.
- (3) Alternatively for subsection (1)
  - (a) the diver is 1 of only 2 divers who are under the water and under the supervision of the same dive supervisor
  - (b) each diver
    - (i) can clearly see the other diver
    - (ii) can immediately go to the rescue of the other diver
    - (iii) must not be substantially obstructed from reaching the other diver
    - (iv) must be allowed under sections 149 and 170 to make the dive.
- (4) A stand-by diver can not be the dive supervisor.
- (5) A stand-by diver may be the stand-by diver for some or all of the divers diving under the supervision of the same dive supervisor.
- (6) Subsection (1) is a workplace health and safety obligation for the act.

### **173 Recompression chamber and qualified operator**

- (1) A relevant person must not:
  - (a) do restricted diving work unless subsection (2) is complied with
  - (b) allow a worker to do restricted diving work unless subsection (2) is complied with.
- (2) For subsection (1):
  - (a) an operational recompression chamber must be at, or near, the dive site where the work is to be done
  - (b) a person must be at the dive site or chamber to operate the chamber
  - (c) the person must hold an ADAS diving certificate for the category:
    - (i) air diving to 50m (AS 2815, part 3)
    - (ii) bell diving (AS 2815, part 4).
- (3) For subsection (2)(a), a recompression chamber is operational if:
  - (a) the chamber is fully operational and complies with AS/NZS 2299, part 1, clause 4.2 as published on 5 March 1999, other than clause 4.2.2(f) or 4.2.8
  - (b) the equipment mentioned in clause 4.4, other than clause 4.4.4, of that standard is available at the chamber.

Editor's note:

  - AS/NZS 2299 (Occupational diving operations), part 1 (Standard operational practice), clause 4.2 (Chamber design, construction, fittings and services)
  - AS/NZS 2299 (Occupational diving operations), part 1 (Standard operational practice), clause 4.4 (Medical equipment)
- (4) For subsection (2)(a), a recompression chamber is near the dive site if a diver could be moved to the chamber in 5 minutes from where the diver doing the work enters the water, if the diver were unconscious when the diver leaves the water.
- (5) Subsection (1) is a workplace health and safety obligation for the act.
- (6) In this section:
  - restricted diving work** means construction diving work:
    - (a) at a depth of over 30m

- (b) requiring a decompression stop.

**174 Recompression chamber not to be operated without appropriate qualifications**

- (1) This section applies if a relevant person:
  - (a) is doing construction diving work
    - Note:  
A relevant person is doing construction diving work if the relevant person or a worker of the relevant person is doing construction diving work.
  - (b) has a recompression chamber under the control of the relevant person.
- (2) The relevant person must not
  - (a) operate the recompression chamber unless subsection (3) is complied with
  - (b) allow a worker to operate the recompression chamber unless subsection (3) is complied with.
- (3) For subsection (2), the relevant person must hold an original or copy of an ADAS diving certificate, for the person operating the chamber, for the category
  - (a) air diving to 50m (AS 2815, part 3)
  - (b) bell diving (AS 2815, part 4).
- (4) The relevant person must keep the certificate or copy for at least 1 year after a recompression chamber is operated under subsection (2) in reliance on the certificate or copy.
- (5) Subsections (2) and (4) are workplace health and safety obligations for the act.

**175 When using open circuit scuba is prohibited**

- (1) A relevant person must not:
  - (a) do construction diving work using open circuit scuba in any of the circumstances mentioned in subsection (2)
  - (b) allow a worker to do construction diving work using open circuit scuba in any of the circumstances mentioned in subsection (2).
- (2) The circumstances are that the diver will:
  - (a) be at a depth of over 30m
  - (b) use a tool powered by anything other than a person
  - (c) be doing work requiring a decompression stop
  - (d) be at risk of being injured or trapped as a result of anyone's use of mechanical lifting equipment or a buoyancy lifting device
  - (e) be underneath something that would require the diver to move sideways, other than at an upwards angle, if the diver were to attempt to ascend.
- (3) Subsection (1) is a workplace health and safety obligation for the act.

**176 Work below 50m using SSBA supplying compressed air prohibited**

- (1) A relevant person must not:
  - (a) do construction diving work at a depth of over 50m using SSBA supplying compressed air
  - (b) allow a worker to do construction diving work at a depth of over 50m using SSBA supplying compressed air.
- (2) Subsection (1) is a workplace health and safety obligation for the act.