

# Commercial diving projects inland/inshore

Diving at Work Regulations 1997

Approved Code of Practice and guidance



**L104 (Second edition)**  
**Published 2014**

This Approved Code of Practice (ACOP) and associated guidance provides practical advice and sets out what you have to do to comply with the requirements of the Diving at Work Regulations 1997.

It applies to all diving projects conducted in support of civil engineering or marine-related projects and fish farming:

- inshore within United Kingdom territorial waters adjacent to Great Britain (generally 12 nautical miles from the low water line);
- inland in Great Britain including in docks, harbours, rivers, culverts, canals, lakes, ponds and reservoirs;
- in tanks or swimming pools.

This ACOP does not apply to:

- commercial shellfish diving for which the Health and Safety Executive (HSE) has issued specific guidance material;
- diving projects specifically covered by one of the other ACOPs approved by HSE under the Diving Regulations 1997.

This edition of the ACOP has been revised in order to simplify some of the information, update the references and provide greater consistency across all the ACOPs covering diving at work. This document has also been updated to reflect changes in technology and industry practice.

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### **Approved Code of Practice**

This Code has been approved by the Health and Safety Executive, with the consent of the Secretary of State. It gives practical advice on how to comply with the law. If you follow the advice you will be doing enough to comply with the law in respect of those specific matters on which the Code gives advice. You may use alternative methods to those set out in the Code in order to comply with the law.

However, the Code has a special legal status. If you are prosecuted for breach of health and safety law, and it is proved that you did not follow the relevant provisions of the Code, you will need to show that you have complied with the law in some other way or a Court will find you at fault.

### **Guidance**

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

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## Introduction

### About this book

1 This Approved Code of Practice (ACOP) sets out what you have to do to comply with the requirements of the Diving at Work Regulations 1997 (the Diving Regulations).<sup>1</sup> The ACOP text and associated guidance provide practical advice on how you can comply with the requirements of the Regulations.

2 This ACOP applies to all diving projects conducted in support of civil engineering or marine-related projects and fish farming:

- (a) inshore within United Kingdom territorial waters adjacent to Great Britain (generally 12 nautical miles from the low water line);
- (b) inland in Great Britain including in docks, harbours, rivers, culverts, canals, lakes, ponds and reservoirs;
- (c) in tanks or swimming pools.

3 This ACOP does not apply to:

- (a) commercial shellfish diving for which the Health and Safety Executive (HSE) has issued specific guidance material;
- (b) diving projects specifically covered by one of the other ACOPs approved by HSE under the Diving Regulations 1997.

4 The ACOP has been revised to simplify some of the information, update the references and provide greater consistency across all of the ACOPs covering diving at work. Revisions in this ACOP have also reflected changes in technology and industry practice. The most significant changes relate to:

- (a) the availability of compression chambers. This change is to reflect medical advice and research into time to treatment for decompression illness.
- (b) fitness to dive. Further information has been provided for divers regarding medical treatment, medical conditions or medication being taken, that may make them unfit to dive.
- (c) dive teams. The minimum dive team size for surface supplied, SCUBA diving and diving in benign conditions has been changed to ensure consistency between the ACOPs.
- (d) partial pressure of oxygen. The maximum recommended partial pressure of oxygen for breathing gases has been changed to 1.4 bar and there is new information on the use of decompression procedures requiring higher levels of oxygen.

## About ACOPs

5 ACOPs are approved by the HSE Board with the consent of the Secretary of State (see Appendix 1: Notice of Approval for details).

6 The ACOP describes preferred or recommended methods that can be used (or standards to be met) to comply with the Diving Regulations and the duties imposed by the Health and Safety at Work etc Act 1974 (HSW Act).<sup>2</sup> The accompanying guidance also provides advice on achieving compliance, or it may give information of a general nature, including explanation of the requirements of the law, more specific technical information or references to further sources of information.

7 The legal status of ACOP and guidance text is given on the copyright page (page 2).

## Presentation

8 The ACOP text is set out in **bold** and the accompanying guidance in normal type, the text of the Regulations is in *italics*. Coloured borders also indicate each section clearly.

## The other diving ACOPs

9 There are four other ACOPs covering diving at work:

- (a) *Commercial diving projects offshore*;<sup>3</sup>
- (b) *Recreational diving projects*;<sup>4</sup>
- (c) *Media diving projects*;<sup>5</sup>
- (d) *Scientific and archaeological diving projects*.<sup>6</sup>

## Sources of information

10 The ACOPs do not cover the detailed technical aspects of controlling the risks from diving at work. Guidance published by HSE provides detailed technical advice on assessing and minimising the risks. Details can be obtained from the HSE website at [www.hse.gov.uk/diving/index.htm](http://www.hse.gov.uk/diving/index.htm).

11 HSE also references other guidance that is published by the Association of Diving Contractors (ADC), the International Marine Contractors Association (IMCA) (and its predecessor the Association of Offshore Diving Contractors (AODC)) and the Diving Medical Advisory Committee (DMAC). Details of relevant material can be found in the 'References and further reading' section within this ACOP. You should always check that any referenced material is still current.

## Definitions in the Regulations

### Regulation 2 Interpretation

<b>Regulation</b>	<b>2</b>	(1) <i>“diver” means a person at work who dives;</i>
<b>Guidance</b>	<b>2</b>	12 ‘At work’ means as an employee or as a self-employed person. The phrase covers divers who dive as part of their duties as an employee and divers who are in business on their own account during the time that they devote themselves to work as a self-employed diver. Diving does not have to be the main work activity of the employee or the self-employed person. The Diving Regulations apply to any diving project when at least one diver is at work.
<b>Regulation</b>	<b>2</b>	(2) <i>For the purposes of these Regulations a person “dives” if –</i>  (a) <i>he enters –</i> <i>(i) water or any other liquid; or</i> <i>(ii) a chamber in which he is subject to pressure greater than 100 millibars above atmospheric pressure; and</i>  (b) <i>in order to survive in such an environment he breathes in air or other gas at a pressure greater than atmospheric pressure;</i>
<b>Guidance</b>	<b>2</b>	13 Environments such as scientific clean rooms or submersible craft subject to an internal pressure of less than 100 millibars above local ambient atmospheric pressure are not covered by the Diving Regulations.
<b>Regulation</b>	<b>2</b>	(1) <i>“diving project” means any activity, made up of one or more diving operations, in which at least one person takes part or will take part as a diver and extends from the time when that person, or the first such person, commences to prepare to dive until that person, or the last such person, has left the water, chamber or other environment in which the dive, or any part of the dive, took place and has completed any requisite decompression procedures, including, where it may be reasonably anticipated that this will be needed, any therapeutic recompression;</i>
<b>Guidance</b>	<b>2</b>	14 ‘Diving project’ is the term used for the overall diving job – whether it lasts two hours or two months. It can be made up of one or more diving operations.  15 The diving project does not necessarily finish once the last diver has returned to atmospheric pressure. Many decompression procedures require the diver to remain in the close vicinity of a compression chamber for a specified time in case there is a need for treatment of symptoms of decompression illness. The diving project is only completed once that time period has expired.
<b>Regulation</b>	<b>2</b>	(1) <i>“the 1995 Order” means the Health and Safety at Work etc. Act 1974 (Application outside Great Britain) Order 1995;<sup>(a)</sup></i>
		(a) The reference to the 1995 Order is now treated as a reference to the Health and Safety at Work etc 1974 (Application outside Great Britain) Order 2013, which has succeeded the 1995 Order.

## Regulation 3 Application and extent

### Regulation 3

(2) *These Regulations shall apply to and in relation to the premises and activities outside Great Britain to which sections 1 to 59 and 80 to 82 of the Health and Safety at Work etc. Act 1974 apply by virtue of the 1995 order as they apply within Great Britain.*

### Guidance 2, 3

16 The Diving Regulations cover all diving projects in Great Britain, within UK territorial waters as well as those diving projects conducted in the UK designated areas of the continental shelf associated with offshore installations and energy structures, eg wind farms, wells, emerging energy technologies and pipeline works.

### Regulation 3

(1) *These Regulations shall apply to and in relation to any diving project apart from the following –*

- (a) *the care or treatment of patients in a hospital or other place, not under the control of the diving contractor, where emergency medical treatment is provided or in transit to such hospital or place where the means of transit is provided by or in respect of the hospital or other place;*

### Guidance 3

17 The use of compression chambers within diving projects is covered by the Diving Regulations. However, those receiving hyperbaric treatment at a hospital or other place are outside the scope of the Diving Regulations. This is to avoid duplication of responsibilities when another authority is involved in the medical treatment of a diver.

18 Where hyperbaric treatment is to be provided at a hospital or other place, the arrangements for this should be covered in the diving project plan. The arrangements should include ensuring the availability of that chamber and arrangements to ensure the safe transport of the diver for treatment.

### Regulation 3

(1) *These Regulations shall apply to and in relation to any diving project apart from the following –*

- (c) *work carried out in any air which is compressed in order to prevent the ingress of ground water to the works or to stabilise the area around the works.*

### Guidance 3

19 Construction activities that are subject to the Work in Compressed Air Regulations 1996<sup>7</sup> where the primary purpose is either to keep ground water out or to make a structure stable are not covered by the Diving Regulations.

## Regulation 5 The diving contractor

### Regulation 5

(1) *No person at work shall dive in a diving project and no employer shall employ any person in such a project unless there is one person and one person only who is the diving contractor for that project.*

### Guidance 5

20 The term 'person' used to identify the diving contractor under this regulation means any person with legal identity. An individual would be a person within the meaning of this term and so would a company.



## Regulation 8 Diving project plan

**Regulation 2**

(1) “diving operation” means a diving operation identified in the diving project plan pursuant to regulation 8(3);

**Regulation 8**

(3) The diving project plan shall identify each diving operation which makes up the diving project and the nature and size of any diving operation so identified shall be such that it can be safely supervised by one person.

**Guidance 2, 8**

21 Diving operations can be made up of either a number of dives or even a single dive. A diving operation is the portion of a diving project identified in the diving project plan which can be supervised safely by one person. It will normally be evident what this portion of work is, but factors such as the task, site conditions and the diving techniques to be used, all contribute to making the decision. For example, a 28-day diving project may be made up of 40 diving operations.

22 The diving contractor has the main responsibility, under the Diving Regulations, for ensuring that a safe diving project is carried out, although other people have responsibilities under the Diving Regulations, for example clients. The diving contractor should determine, after studying the risk assessment, how many diving operations the diving project is to be broken down into and must appoint a supervisor to supervise each operation. The diving contractor has responsibility for ensuring that all parts of a diving project are managed in such a way as to ensure the safety of the people involved in it. If there is more than one diving operation being conducted at the same time, as part of the diving project, the diving contractor has a responsibility to ensure that there is proper co-ordination.

23 The supervisor has a duty to direct the diving operation safely. If a supervisor does not agree with the size or complexity of the portion of the diving project allocated as their operation to supervise, the supervisor should raise the matter with the diving contractor. A supervisor should not participate in a diving operation that they consider to be unsafe because, for example, in the supervisor’s opinion it is too large for one person to supervise safely or that the supervisor knows that they are not competent to supervise.

## Clients and others

### Regulation 4 Duty to ensure compliance with these Regulations

#### Regulation 4

*Every person who to any extent is responsible for, has control over or is engaged in a diving project or whose acts or omissions could adversely affect the health and safety of persons engaged in such a project, shall take such measures as it is reasonable for a person in his position to take to ensure that these Regulations are complied with.*

#### ACOP 4

**24** The actions and activities of other people can affect the safety of the dive team even though they are not members of the team, and therefore they may have responsibilities for ensuring that the Regulations are complied with for those matters under their control. These people include:

- (a) the client who has placed a contract with a diving contractor to deliver a diving project. The client may be the owner of a site where diving work is going to take place, or the owner's agent, or a contractor acting on behalf of the owner or agent. If the owner or agent appoints an on-site representative, they should be satisfied that that person is competent for the task;
- (b) the principal contractor carrying out work for the client and overseeing the work of the diving contractor;
- (c) a consultant acting for the client, owner, contractor or agent;
- (d) a master of a vessel or floating structure from which diving is to take place who controls the vessel or floating structure and who has overall responsibility for the safety of the vessel or floating structure and all personnel on it;
- (e) any other person whose actions or activities may affect the safety of the diving project.

**25** These people should consider carefully the actions required of them to comply with the Diving Regulations. They should, where relevant/appropriate:

- (a) take reasonable steps to ensure that any diving contractor selected is capable of complying with the Diving Regulations;
- (b) make available to the diving contractor the results of any risk assessments undertaken by other people under other statutory legislation that could affect the health and safety of the dive team;
- (c) agree to provide facilities and extend all reasonable support to the supervisor or diving contractor in the event of an emergency. The diving project plan should reflect this;
- (d) consider whether any known underwater or above-water items of plant under their control may cause a hazard to the dive team. Such items may include locks, weirs, water intakes or discharge points causing suction or turbulence, and ship propellers. The diving contractor should

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be informed of the location and nature of such hazards. They should also provide the diving contractor, in good time, with details of any changes to this information occurring before or during the course of the diving project;

- (e) ensure that suitable facilities and time are available to the diving contractor to allow for a familiarisation programme;
- (f) consider whether other activities in the vicinity may affect the safety of the diving project; for example, they may need to arrange for the suspension of loading or unloading of vessels, piling work or demolition activities;
- (g) ensure that they have a formal control system in place to cover diving activities, for example a permit-to-work system;
- (h) provide the diving contractor with details of any possible substance likely to be encountered by the dive team that would be a hazard to their health, for example sewage or chemicals. This information should be provided in writing and in sufficient time to allow the diving contractor to carry out the relevant risk assessment and, if necessary, to take appropriate action;
- (i) keep the supervisor informed of any changes that may affect the supervisor's diving operation in so far as they have control over or knowledge of such changes; for example vessel movement in a harbour or on a river, so that diving can be suspended if the diving site is, or may be, endangered.

26 Other groups of people, for example harbour masters, may have authority over the dive under regulations other than the Diving Regulations.

27 The duty under this regulation extends to diving contractors, supervisors, divers and people involved in the diving project whether directly or indirectly, for example crane operators, lorry drivers, and maintenance personnel. They should ensure that their tasks and how they undertake them do not affect the safety of the dive team.

## Diving contractors

### Regulation 5 The diving contractor

**Regulation 5**

(1) *No person at work shall dive in a diving project and no employer shall employ any person in such a project unless there is one person and one person only who is the diving contractor for that project.*

(2) *The diving contractor shall, subject to paragraph (3), be the person who –*

- (a) *is the employer of the diver or divers engaged in the diving project; or*
- (b) *dives in the diving project as a self-employed diver.*

(3) *Where there is more than one person falling within paragraph (2) those persons shall jointly appoint in writing before the commencement of the diving project one of themselves to act as diving contractor.*

**ACOP 5**

**28** The Diving Regulations require that one person is identified as the diving contractor for each diving project. The main duties under the Diving Regulations are placed on the diving contractor. The diving contractor will normally be the employer of the divers engaged in the diving project.

**29** Where the client engages more than one employer of divers or self-employed diver for the diving project, it must be established and recorded in writing who will be the diving contractor for that project.

### Regulation 6 Duties of diving contractor

**Regulation 6**

(1) *The diving contractor shall ensure, so far as is reasonably practicable, that the diving project is planned, managed and conducted in a manner which protects the health and safety of all persons taking part in that project.*

(3) *The diving contractor shall –*

- (d) *ensure, so far as reasonably practicable, that any person taking part in the diving project complies with the requirements and prohibitions imposed on him by or under the relevant statutory provisions and observes the provisions of the diving project plan;*
- (e) *ensure that a record containing the required particulars is kept for each diving operation;*

**ACOP 6**

**30** The diving contractor should ensure that:

- (a) the diving project is properly and safely managed;
- (b) risk assessments have been carried out (see 'Diving project plan and risk assessment');
- (c) the place from which the diving is to be carried out is suitable and safe;

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- (d) a suitable diving project plan is prepared which includes emergency and contingency plans (see 'Diving project plan and risk assessment');
- (e) the supervisor and dive team are fully briefed on the diving operation that they will be involved with and aware of the contents of the overall diving project plan;
- (f) there are sufficient personnel in the dive team to enable the diving project to be carried out safely (see 'Dive teams and associated working practice');
- (g) the personnel are competent and/or qualified (see 'Supervisors' and 'Divers');
- (h) supervisors are appointed in writing and the extent of their control documented (see 'Supervisors');
- (i) where appropriate a suitable mobilisation and familiarisation programme is completed by all the members of the dive team. Other personnel involved in the dive project, for example ship's crew, may also need to complete the programme (see 'Diving project plan and risk assessment');
- (j) adequate arrangements exist for first aid and medical treatment (see 'Dive teams and associated working practice');
- (k) suitable and sufficient plant is provided and that it is correctly certified and maintained (see 'Diving plant' and 'Maintenance of diving plant');
- (l) as far as they are able, the divers are medically fit to dive (see 'Medical checks');
- (m) diving project records are kept containing the required details of the diving project (see 'Appendix 2');
- (n) a clear reporting and responsibility structure is laid down in writing;
- (o) all other relevant regulations are complied with.

## Regulation 7 Information to be supplied to Executive by diving contractor

Regulation

7

(1) *No person shall act as a diving contractor unless the particulars listed in Schedule 1 have been supplied in writing to the Executive by or in respect of that person.*

(2) *Where there is a change in any of the particulars supplied under paragraph (1) the diving contractor shall ensure that details of the change are forthwith supplied in writing to the Executive.*

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**31 Before any person (see paragraph 20 for the definition) acts as a diving contractor, they must ensure that HSE is provided with information about their identity and where they can be contacted. The diving contractor is also required to inform HSE of any subsequent changes to this information.**

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**32** The particulars to be sent to HSE relating to the diving contractor's identity are set out in Schedule 1 to the Diving Regulations. HSE will acknowledge receipt of such information.

## Diving project plan and risk assessment

### Regulation 6 Duties of diving contractor

#### Regulation 6

- (2) *The diving contractor shall –*
- (a) *ensure that, before the commencement of the diving project, a diving project plan is prepared in respect of that project in accordance with regulation 8 and that the plan is thereafter updated as necessary during the continuance of the project;*
  - (b) *before the commencement of any diving operation –*
    - (i) *appoint a person to supervise that operation in accordance with regulation 9;*
    - (ii) *make a written record of that appointment; and*
    - (iii) *ensure that that person is supplied with a copy of any part of the diving project plan which relates to that operation;*
  - (c) *as soon as possible after the appointment of a supervisor, provide that supervisor with a written record of his appointment.*

### Regulation 8 Diving project plan

#### Regulation 8

(1) *The diving project plan shall be based on an assessment of the risks to the health and safety of any person taking part in the diving project and shall consist of a record of the outcome of the planning carried out in accordance with regulation 6(1) including all such information and instructions as are necessary to give advice to and to regulate the behaviour of those so taking part to ensure, so far as is reasonably practicable, their health and safety.*

(3) *The diving project plan shall identify each diving operation which makes up the diving project and the nature and size of any diving operation so identified shall be such that it can be safely supervised by one person.*

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**33 The diving contractor is responsible for ensuring that a risk assessment is carried out and a diving project plan prepared.**

#### Risk assessment

**34 A risk assessment must be carried out to identify site-specific hazards and their risks.**

**35 The project risk assessment should be reviewed at regular intervals, even if the risk is minimal, to ensure that the risk assessment is still adequate and does not need to be revised.**

**36 A risk assessment made under the Diving Regulations will cover, in part, the obligation to make an assessment under the Management of Health and**

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Safety at Work Regulations 1999 (the Management Regulations).<sup>8</sup> There will be no need to repeat those aspects of the assessment, so long as they remain valid, in any other assessment that is carried out. However, all significant risks not covered by the diving project assessment (including risks to members of the public arising from the diving project/diving activities) must be covered by the risk assessment carried out under the Management Regulations or in any assessment required to be carried out under other specific regulations.

### Diving project plan

37 Based on this information, the diving project plan must state how the hazards identified and risks assessed will be controlled. The diving project plan may include a diving contractor's standard operating rules, including generic risk assessments. All documents should show the date that they were prepared. The diving project plan should record the outcome of the planning carried out in preparing the risk assessment including all information and instructions which, so far as reasonably practicable, are necessary to protect the health and safety of all those taking part in the diving project. It should also explain when and how reviews of the plan, the dive site and the specific risk assessments should be conducted. The results of the review will only need to be recorded if there has been a significant change.

38 The diving project plan must cover the general principles of the diving techniques to be used as well as the needs of the particular operation. It must also provide contingency procedures for any foreseeable emergency, including retrieving injured and/or unconscious divers from the water.

39 Each supervisor must be given a copy of that part of the diving project plan relevant to the diving operation that they will be supervising.

40 Some examples of hazards and risks are given in paragraphs 41–73. However, this is not a complete list of all hazards or all measures needed to control risk and in special circumstances, or if certain contingencies arise, more stringent safeguards may be needed.

### General

#### *Diving methods*

41 Diving methods and equipment should be determined as part of the risk assessment.

42 Diving using surface-supplied breathing apparatus is the preferred method of carrying out diving operations under this ACOP because it is considered to be the safest method of diving for the vast majority of diving operations covered.

43 The diving contractor should ensure as a minimum that:

- (a) the diver wears a full-face mask which should be fitted with either an oral nasal or a mouthpiece;
- (b) the diver carries an independent secondary source of breathing gas (for example, a bail-out cylinder);
- (c) there is a lifeline from the diver to the surface. This should be tended. Two divers connected by a buddy line need only be provided with one tended lifeline; and

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(d) appropriate two-way communication with the diver is provided.

44 When the diver is connected by a lifeline to a surface marker float, the appropriate surface support team should be in a position to render assistance in an emergency. If two divers are connected by a buddy line, only one marker float need be used.

*Use of compressed air or gas mixtures*

45 Divers breathing a mixture of oxygen and nitrogen under pressure, whether compressed natural air or an artificial mixture, are at risk of both oxygen toxicity and nitrogen narcosis as the depth increases. The maximum depth for breathing mixtures of compressed air or oxygen and nitrogen is 50 metres of water. The recommended maximum partial pressures for oxygen is 1.4 bar. Some decompression tables include decompression stops which require higher partial pressure of oxygen. This may pose an increased risk of oxygen toxicity. If such decompression techniques are used, the procedures accompanying the decompression tables should be followed, and the risk assessment for the dive should consider the increased risk of oxygen toxicity. Some therapeutic tables may also require higher partial pressures of oxygen.

*Exposure limits for surface-orientated diving*

46 Diving carries an inherent risk of decompression illness (DCI). The incidence of DCI drops if the length of time that a diver spends at any particular depth is limited. The depth/time limitations applicable to a single dive are reproduced in Table 1. Use of this table has resulted in a significant reduction in the incidence of DCI, and diving project plans should incorporate these maximum time limits.

47 When breathing oxy-nitrogen mixtures with oxygen percentages higher than in natural air, the equivalent air depth should be established. It is this equivalent air depth that should be used to establish bottom time limits (see Table 1 on page 17).

*Water flow, intakes and discharges*

48 Divers are vulnerable to water flow, suction or turbulence, whether natural or caused by water intakes or discharges. Other differential pressure situations such as blanked pipelines and void spaces also pose a significant risk. Where any intakes or discharges are known or suspected, suitable measures (including where practical physical or mechanical isolation) should be taken to ensure that these cannot be operated while a diver is in the water. The measures to protect the diver should be part of a safe system of work, for example a permit-to-work system.

*Contaminated water*

49 Diving can involve exposing the diver to waters that may be contaminated. The diving project plan should identify the methods put in place to protect the diver.

*Restricted surface visibility*

50 Restricted surface visibility may affect the safety of the operation, for example when diving in darkness, heavy rain or fog. The diving project plan should identify when an operation should be suspended because of restricted visibility.



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**Table 1** Maximum bottom time limitations for surface decompression (SD) and in-water decompression

Depth		Bottom time <sup>†</sup> limits (minutes) SD and in water
Metres	Feet	
0–12	0–40	240
15	50	180
18	60	120
21	70	90
24	80	70
27	90	60
30	100	50
33	110	40
36	120	35
39	130	30
42	140	30
45	150	25
48	160	25
51	170	20

† Bottom time is the total elapsed time from when the diver is first exposed to a pressure greater than atmospheric, (that is when leaving the surface to the time (next whole minute) that the diver begins decompression (measured in minutes)). Divers should always take the lowest depth stop, for example, for 49 metres the 51 metres stop should be used.

**Weather**

51 Adverse weather conditions may affect the safety of a diving operation and the diving project plan should identify when an operation should be suspended.

**Underwater currents**

52 Currents may impose limitations on a diver’s operational ability. Tide meters and tide tables may provide information on the current at different depths and can be used to help assess diving conditions.

**Diving near remotely operated vehicle (ROV) operations**

53 There are a number of safety considerations that should be taken into account when divers are working with, or in the vicinity of, ROVs. These include, for example, entanglement of umbilicals, physical contact and electrical hazards. Possible solutions include restricting umbilicals in length, employing guards and electrical trip mechanisms.

**Safe use of electricity**

54 Divers often come into contact with plant, including battery-powered equipment, operated by or carrying electricity. Care should be taken to ensure that the divers and other members of the dive team are protected from the risk arising from the use of electricity, in particular from any shock hazard.

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***High-pressure water jetting***

55 Even an apparently minor accident with this plant has the potential to cause a serious internal injury to the diver. Safe operating procedures when using such equipment should be followed.

***Lifting***

56 Diving projects will often require the use of lifting equipment including cranes, lift bags etc. The diving project plan should address the risks associated with lifting operations and specify how they will be planned, supervised and carried out in a safe manner by people who are competent.

***Abrasive cutting discs***

57 The adhesive used in cutting discs tends to degrade under water causing the discs to break during use. Only dry discs not previously exposed to water should be used, and only those discs required for use by a diver at any one time should be taken under water.

***Oxy-arc cutting and burning operations***

58 There are dangers in the use of oxy-arc cutting and burning underwater, for example explosions from trapped gases, and the trapping of a diver by items after cutting. Safe operating procedures should be followed.

***Diving from vessels***

59 Safe systems of work should be enforced to prevent divers from suffering injury from vessel propulsion systems, and must include exhibiting appropriate signs and signals.

***Flat-bottomed vessels***

60 Precautions to help the diver avoid disorientation when working beneath a flat-bottomed vessel should be considered.

**Breathing gases**

***Quantity of gases***

61 The quantities of gases required for diving operations, including primary, secondary and therapeutic treatments, should be calculated and procedures for the provision of them stated when planning a diving project. Allowances should be made for leakage, wastage and contingencies. Diving should be stopped if the quantity of gas acceptable for safety purposes falls below the planned minimum.

***Quality of gases***

62 Procedures for checking and maintaining gas purity standards should be provided.

**Medical and physiological considerations**

***Liaison with a doctor***

63 The situation where a member of the dive team is injured or becomes ill but a doctor is not available at the work site should be considered.

***Diver monitoring***

64 Supervisors should monitor divers' breathing patterns and receive oral reports from divers of their condition.

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**Noise exposure**

65 Divers are exposed to a range of noise sources, both on the surface and underwater. These levels may be significant and diving contractors should ensure that the risks are managed.

**Decompression illness**

66 The diving contractor should identify the arrangements in place for the treatment of any cases of decompression illness (DCI).

**Altitude changes after diving**

67 Restrictions on travelling/flying after diving should be contained in the company's diving project plan and be in accordance with the decompression tables being used.

**Diving at altitude**

68 When diving in locations above sea level, the diving contractor shall consider the effects of the reduced atmospheric pressure with regards to decompression requirements. The procedures should be in accordance with the decompression tables being used.

**Thermal stress**

69 Excessive heat and cold can affect the health, safety and efficiency of divers and the dive team. Appropriate personal protective equipment and procedures should be provided to maintain thermal balance.

**Familiarisation**

70 When arriving at a dive site before the start of a diving project, all members of the dive team should familiarise themselves with the diving project, plant, and any other relevant details.

71 A familiarisation programme should be included in the diving project plan where it is appropriate for one to be carried out, for example a large and/or complex diving project. The personnel conducting any explanations or training should be identified and their names recorded. Satisfactory completion of the familiarisation programme by each individual in the dive team should be recorded.

72 The time required for familiarisation will depend on the experience of each individual and whether that individual has previously carried out the same job in that location or a similar job in another location.

**Use of checklists**

73 A diving project will involve sequences, some of which may be complex, of different steps. There is a risk that steps may be omitted or taken out of sequence. A suitable way to ensure the thoroughness of such sequences is the use of prepared checklists that require relevant personnel to tick a box to demonstrate correct completion.

## Dive teams and associated working practice

### Regulation 6 Duties of diving contractor

#### Regulation 6

- (3) *The diving contractor shall –*
- (a) *ensure that there are sufficient people with suitable competence to carry out safely and without risk to health both the diving project and any action (including the giving of first-aid) which may be necessary in the event of a reasonably foreseeable emergency connected with the diving project;*

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##### Dive teams

74 The diving contractor must specify the size of the dive team based on the details of the diving project and the risk assessment. There must be a sufficient number of competent and, where appropriate, qualified personnel to operate all the diving plant and to provide support functions to the dive team.

75 The diving contractor and the supervisor must satisfy themselves that a diver has the competences for the specific tasks required during a particular diving operation. On-the-job or other training may be necessary for individuals to gain competence. When an inexperienced diver is gaining experience in a dive team the other team members and the supervisor will need to be aware of this and provide support.

##### Overall management

76 The diving contractor should provide a clear reporting and responsibility structure in the diving project plan which takes into account that certain individuals, for example supervisors, have specific responsibilities that cannot be changed.

##### Dive team size

77 The required size of the dive team will depend on the risk assessment which should take into account the number of hours to be worked each day, the type of diving, the diving plant and the techniques to be used, any decompression requirements, and the appropriate number required for safety.

##### Surface-supply

78 The minimum team size normally required to conduct a surface-supply dive safely within the scope of this ACOP is five – a supervisor, a working

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diver, a standby diver, a tender for the working diver and a tender for the stand-by diver (see paragraphs 81 and 82). Additional personnel may be required to operate or maintain specialised plant, for example winches, and to assist in an emergency.

### Self-contained underwater breathing apparatus (SCUBA)

79 The use of SCUBA may be acceptable for simple tasks such as visual inspection in clear water where there is no risk of entrapment and the management of an emergency has been considered (see paragraph 42). The minimum team size normally required to conduct a SCUBA dive safely within the scope of this ACOP is four – a supervisor, a working diver, a standby diver and a tender for the working diver (see paragraphs 81 and 82). Additional people may be required to operate or maintain specialised plant, such as winches, and to assist in an emergency.

### Benign conditions

80 In benign conditions in a swimming pool or a tank artificially constructed for the purpose of swimming, diving or for use as an aquarium or media facility, where there is no risk of entrapment and where the diver is in full view from the surface at all times, the standby diver may be dispensed with. The minimum team size may be reduced to three – a supervisor, a diver on a lifeline and a third person on the surface. The third person on the surface need not be a diver but should otherwise be competent for the task.

### Tenders

81 The diving contractor should be satisfied that the tender is competent. The tender should be familiar with the diving procedures to be used and the contingency and emergency plans for the project.

82 For umbilicals or lifelines that are tended from the surface, at least one tender is required for each diver in the water. For umbilicals tended from a basket or stage, one tender is required for each diver in the water.

### Standby diver

83 A standby diver should be in immediate readiness to provide any necessary assistance to a diver in the water.

84 The standby diver should remain on the surface unless required for an emergency. The standby diver should be dressed to enter the water, but need not be wearing a mask or a helmet. This equipment should, however, be immediately to hand.

85 When surface-supplied breathing apparatus is being used for carrying out diving operations under this ACOP it should also be used by the standby diver(s).

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## Overlapping functions

86 Individuals in a dive team may carry out more than one duty, provided that they are competent and, if appropriate, qualified to do so and that their different duties do not interfere with each other or affect the safety of the dive team. For example, divers may carry out other associated duties while waiting to dive, such as acting as tenders or standby divers, or operating and attending to plant.

## Personnel not employed by the diving contractor

87 Personnel who are not employed by the diving contractor but who are considered for inclusion in the dive team must be competent for the work that they are going to do. They should be familiar with the diving contractor's procedures, rules and the diving plant that is to be used.

88 Arrangements for their involvement should be set out in the diving project plan together with details of their responsibilities and reporting line.

## Trainees

89 While being trained for a particular role within a dive team, a trainee is not competent for that role. However, they may during that training be considered for another role in the dive team provided that they are qualified and competent for that task. For example, a diver may form part of a dive team while training as a supervisor. The trainee should not be allowed to take on the functions of the person training them unless the trainer remains in control, is present to oversee their actions, and the safety of the diving operation is not affected.

## First aid

90 The diving contractor is responsible for ensuring that enough people in each dive team have been trained to the current First aid at work or equivalent qualification which includes the content set out in Appendix 5 of *First aid at work: The Health and Safety (First-Aid) Regulations 1981. Guidance on Regulations (L74)*.<sup>9</sup>

91 The diver training programme includes an awareness of diving physiology and medicine. The ability to use those skills and knowledge forms an integral part of the diver competence assessment. At the time of their diver training, trainees will also be taught and assessed for separate first-aid and oxygen administration qualifications.

92 Both these qualifications will be valid for three years. There is no legal obligation on divers to attend requalification courses or to renew the qualifications if they do not wish to do so.

93 For diving under this ACOP, at least two people in the team should be qualified in first aid. The supervisor should be responsible for arranging their duties so that one of them should be able to administer first aid.

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94 The diving contractor's risk assessment, which should be carried out before the start of the diving project, should consider whether additional members of the dive team need to be qualified in first aid. In particular the assessment should take into account the type of diving to be undertaken, the tools and techniques to be used, the size of the dive team and the distance of the dive site from emergency services. *First aid at work* (L74) sets out additional advice for those areas where special additional training may be necessary to cover less common risks.

95 The diving contractor should provide first-aid equipment that is based on their needs assessment as set down in *First aid at work* (L74).

## Diving plant

### Regulation 6 Duties of diving contractor

#### Regulation 6

- (3) *The diving contractor shall –*
- (b) *ensure that suitable and sufficient plant is available whenever needed to carry out safely and without risk to health both the diving project and any action (including the giving of first-aid) which may be necessary in the event of a reasonably foreseeable emergency connected with the diving project;*

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96 The diving contractor must be satisfied that sufficient plant, suitable for the use to which it will be put, is provided for the diving project and that sufficient plant is available, whenever needed, which is suitable to carry out safely any action which may need to be taken in a reasonably foreseeable emergency.

97 Suitability can be assessed by the evaluation by a competent person, clear instructions or statements from the manufacturer or supplier, physical testing, or previous use in similar circumstances. All items of equipment worn by the diver should comply with appropriate national, European or international standards.

#### Storage cylinders

98 Gas cylinders should be suitable in design, fit for purpose and safe for use. Each cylinder should be tested and have appropriate certification issued by a competent person. Cylinders used for diving within the scope of this ACOP may be subjected to special conditions, for example being used underwater, and therefore need special care.

#### Marking and colour-coding of gas storage

99 Accidents have occurred because of wrong gases or gas mixtures being used in a diving project. The diving contractor should ensure that all gas storage units comply with the appropriate national, European or international standards of colour coding and marking of gas storage cylinders, quads and banks. Where appropriate, pipework should also be colour-coded.

#### Divers' breathing gas supply systems

100 Breathing gases should comply with the appropriate national, European or international standards. Each diver's breathing gas should be of the correct composition, temperature and flow for all foreseeable situations. This includes independent primary and secondary supplies. Gas supplies should



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be arranged so that interruption of supplies to one diver will not affect other divers' supplies.

101 Whatever type of breathing apparatus is in use, each diver should carry an independent reserve supply of breathing gas that can be quickly switched to the breathing circuit in an emergency. This should have sufficient capacity to allow the diver to reach a place of safety. If SCUBA is used the independent reserve supply should not be compromised if the primary supply fails.

### Emergency breathing gas cylinders

102 When a diving basket is used by surface-supplied divers, emergency breathing gas cylinders should be supplied in the basket in a standard layout. This allows divers to access the cylinders rapidly in an emergency.

### Oxygen

103 Pressurised oxygen can fuel a serious fire or cause an explosion; it must therefore be stored and handled correctly. Any gas mixture containing more than 25% oxygen by volume should be handled as if it were pure oxygen.

104 Any materials used in plant intended to carry oxygen should be cleaned of hydrocarbons to avoid explosions. Formal cleaning procedures for such plant should be provided by the diving contractor, together with written confirmation that such procedures have been followed.

### Communications

105 All divers in the water should have a communication system that allows direct voice contact with the supervisor on the surface and vice versa.

106 A hard-wired communication system is preferred because the effectiveness of a through-water communication system can be degraded by acoustic shadow, sediment, air bubbles, turbulence etc. Practical testing of the equipment in the operational location is recommended in order to ensure its effectiveness.

107 There are benefits to recording such communications and keeping the recording until the dive is successfully completed. For example, if an incident occurs during the dive the recording may help in any subsequent investigation.

### Lifting plant to carry personnel

108 Such equipment should be designed in accordance with other statutory provisions and appropriate national, European or international standards.

109 Particular selection criteria should be used for lift wires to carry personnel, including any wires for secondary or backup lifting. These wires should be non-rotating and have an effective safety factor in accordance with appropriate national, European or international standards.

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## Winches

110 Winches should be provided with independent primary and secondary braking systems. It is recommended for hydraulic winches that the secondary system operates automatically whenever the operating lever is returned to neutral or on loss of power. Both braking systems should be tested separately by a competent person.

111 Winches should not be fitted with a pawl and ratchet gear where the pawl has to be disengaged before lowering.

## Diving baskets and wet bells

112 A basket or wet bell, used in support of surface-supplied diving, should be able to carry at least two divers in an uncramped position. It should be designed to prevent the diver falling out and to prevent spinning and tipping. It should be fitted with suitable overhead protection and handholds.

113 A secondary means of recovering the divers should be provided.

## Availability of compression chambers

114 The diving contractor has a responsibility to ensure the provision of facilities so that a diver can be recompressed in an emergency, should this be necessary. Treatment of DCI in a compression chamber should commence as soon as possible (subject to medical advice). The provision of a compression chamber should be in accordance with the decompression procedures selected as part of the diving project plan.

115 In addition, the following minimum standards should be applied:

- (a) for dives that are shallower than 10 metres with planned in-water decompression not exceeding 20 minutes, the diving contractor should identify the nearest suitable operational two-person, two-compartment chamber. Under no circumstances should this be more than 6 hours travelling distance from the dive site;
- (b) for dives between 10 and 50 metres with planned in-water decompression not exceeding 20 minutes, the diving contractor should assess the risk of DCI and likelihood of a diver requiring emergency recompression. This should be based on the depth and duration of the planned dives. The assessment should also consider factors which may increase the risk of DCI such as water temperature, type of work, and the number of dives/ascents. If the assessment demonstrates a significant risk of DCI a suitable, operational, two-person, two-compartment chamber should be provided for immediate use at the site of the diving project. If the assessment demonstrates relatively low risk of DCI, the diving contractor should identify the nearest suitable operational two-person, two-compartment chamber. Under no circumstances should this be more than 6 hours travelling distance from the dive site;
- (c) for dives with planned in-water decompression stops greater than 20 minutes the diving contractor should provide a suitable, operational, two-person, two-compartment chamber for immediate use at the site of the diving project. The diver should be able to leave the water quickly and easily and be pressurised within the chamber to the appropriate

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recompression pressure as defined by the time in the decompression schedule being used. The controls of a compression chamber should only be operated by people competent to do so. Such competence will be achieved by a combination of training and experience. The degree of supervision provided should reflect the experience of the operator.

116 The diving project plan should demonstrate that in an emergency, where the compression chamber is not located on the site, a diver will be able to be transported and recompressed to ensure, so far as reasonably practicable, their safety. If the diving project plan relies on the support of any emergency services, then that plan should be subject to continued assessment and take into account any factors which may affect such support (for example changing weather conditions).

117 If a situation arises where a diver may need hyperbaric treatment at a chamber provided by another chamber owner, then provision for this should be made in the diving project plan.

118 If the diving contractor is responsible for transporting the injured diver to a hospital or other place, their duty will continue until the diver is admitted to the hospital or other place.

### Suitability of compression chambers

119 Two-person, two-compartment compression chambers should be suitable for the purposes intended and comply with the recognised standard appropriate to this ACOP.

### Oxygen availability

120 Oxygen should be immediately available at all locations covered by this ACOP, including those where there is a compression chamber. Sufficient gas should be provided for the duration of a transfer of a diver to a compression chamber, hospital or other place. It should be provided by a tight-fitting mask or by a mouthpiece with a noseclip.

## Maintenance of diving plant

### Regulation 6 Duties of diving contractor

Regulation 6

(3) *The diving contractor shall –*

(c) *ensure that the plant made available under sub-paragraph (b) is maintained in a safe working condition;*

ACOP 6

121 Diving plant is used under extreme conditions, including immersion in salt water. It should therefore be maintained, examined and tested regularly. It should be inspected immediately before use by a competent person to ensure that it is not damaged or suffering from deterioration.

#### Planned maintenance system

122 The diving contractor should establish a system of planned maintenance for plant. Maintenance arrangements should take into account passage of time and usage along with the manufacturers' recommendations. Details of the maintenance arrangements should be entered in the diving project plan. The arrangements should identify the item of plant, the date of the check, any limitations as to use, any repairs or modifications carried out and the signature of the competent person.

#### Periodic examination, testing and certification

123 The frequency and extent of examination and testing required for all items of plant used in a diving project should be based on the manufacturers' recommendations and be in accordance with the appropriate statutory provisions and the appropriate national, European or international standards.

#### Pre-dive visual inspection

124 The dive team should carry out a pre-dive visual inspection and check the plant that they are to use to check that it is in serviceable condition and working.

#### Cylinders used underwater

125 Divers' emergency gas supply cylinders and other cylinders used underwater can suffer from accelerated corrosion and must be regularly examined and maintained.

**ACOP**

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**Diving basket and wet bell lift wires**

126 Frequent immersion in water, shock loading, passing over multiple sheaves and so on can cause wear and deterioration to the lift wires if they are not properly maintained. Specialist advice on maintenance should be followed to ensure that wires remain fit-for-purpose.

**Lift bags**

127 Special requirements for the periodic examination, testing and certification of lift bags have been established. Manufacturers' maintenance instructions and testing requirements should be followed.

## Supervisors

### Regulation 9 Appointment of supervisor

**Regulation** 9

*(1) Only one supervisor shall be appointed to supervise a diving operation at any one time.*

**ACOP** 9

**128** A supervisor must be appointed in writing by the diving contractor. If a diving project is taking place over such an area or timescale that its operation cannot be controlled by one supervisor, then further supervisors should be appointed. Written appointments should clearly define the times and areas of control. The supervisor should have immediate overriding control of all safety aspects of the diving operation for which they are appointed.

**Regulation** 9

*(2) No person shall be appointed, or shall act, as a supervisor unless he is competent and, where appropriate, suitably qualified to perform the functions of supervisor in respect of the diving operation which he is appointed to supervise.*

**ACOP** 9

#### Competence

**129** The diving contractor must consider the competence of a person before appointing them as a supervisor. When considering competence, the diving contractor should consider such questions as whether the person is knowledgeable, practical, reliable; capable of conducting the diving operation in a safe manner; capable of managing members of the diving team appropriately and remaining calm and acting effectively in an emergency. A formal supervisor qualification is one way of demonstrating competence.

**130** The diving contractor will be in a good position to decide on a person's competence if the person has worked for the company for some time. If the diving contractor does not know the person, reliable evidence should be sought to establish their experience.

**131** A supervisor must be suitably qualified. This means that they must hold an approved diving qualification for the diving operation and for the diving techniques which they are supervising, or have acted as a supervisor of a diving operation in which the same diving techniques were used during the two-year period before 1 July 1981. For example, if a diving contractor is employing surface-supplied and SCUBA divers for a particular diving operation, it would not be acceptable to appoint a supervisor who was only qualified for SCUBA diving; the supervisor would have to be qualified in both surface-supplied and SCUBA diving. A list of current approved qualifications is available on the HSE diving website (see 'Further reading').

**132** A certificate of medical fitness to dive is not required for supervisors unless they will also be diving in the project.

## Regulation 10 Duties of supervisor

### Regulation 10

(1) *The supervisor shall, in respect of the diving operation for which he has been appointed as supervisor –*

- (a) *ensure that it is carried out, so far as is reasonably practicable –*
  - (i) *without risk to the health and safety of all those taking part in that operation and of other persons who may be affected thereby;*

### ACOP 10

#### Supervisor's responsibility

133 Supervisors are responsible for the operation that they have been appointed to supervise and they should only hand over control to another suitably qualified supervisor appointed for that diving project by the diving contractor. Such a handover must be entered in the diving operation record. Supervisors can only supervise that part of a diving project that they can safely and personally control, both during routine operations and in an emergency.

134 The supervisor with responsibility for the operation is the only person who can order the start of a dive. Other relevant parties, such as a harbour master, can however, tell the supervisor to terminate a dive for safety or operational reasons.

135 A supervisor should be in control when a diver is under pressure in a compression chamber at the site of the diving project.

136 During diving operations from a vessel, the supervisor should liaise with other personnel, such as the vessel master. In such circumstances, the supervisor should recognise that the vessel master has responsibility for the overall safety of the vessel and its occupants.

137 To ensure that a diving operation is carried out safely, supervisors must conduct the diving operation in accordance with the requirements of the diving project plan and the site-specific risk assessment. They should:

- (a) ensure, as far as reasonably practicable, that the operation that they are being asked to supervise complies with the requirements of this ACOP;
- (b) satisfy themselves, as far as reasonably practicable, that the proposed dive site and the water and weather conditions are suitable;
- (c) ensure that the risk assessment is still current for the prevailing circumstances on the day of and during the dive;
- (d) ensure that they understand their own areas and levels of responsibility and who is responsible for any other relevant areas;
- (e) satisfy themselves that the personnel that they are to supervise are competent to carry out the work required of them and, where appropriate, hold a suitable and valid certificate. They should also check, as far as reasonable, that these personnel are fit, and in possession of all necessary certificates, ie where appropriate, medical fitness to dive, diver's, and first-aid certificate;
- (f) ensure that the diving project plan and arrangements for dealing with foreseeable emergencies are clearly understood by all those engaged in the diving operation. This would normally be ensured by carrying out a pre-dive briefing session with all those involved and, if appropriate, carrying out a rehearsal of the arrangements;
- (g) check that the plant that they propose to use is adequate, safe, properly certified and maintained. They should ensure that the plant is adequately inspected by themselves or another competent person before its use.

**ACOP 10**

- Such inspections should be documented, for example on a prepared checklist, and recorded in the diving operation record;
- (h) ensure that the possible hazards from complex or potentially hazardous plant have been evaluated and are fully understood by all relevant parties and that, if required, training or familiarisation is given;
  - (i) establish so far as they are reasonably able that all relevant people are aware that a diving operation is to start or continue. They should also obtain any necessary permission before starting or continuing the operation, for example when working in or close to a lock or in a harbour;
  - (j) have adequate means of communication with any personnel under their supervision. So long as they have such communication they do not need to be able to operate physically every control under their responsibility. For example, a supervisor will be able to supervise adequately the raising and lowering of plant if there is a direct audio link with the winch operator, even though the winch may be physically located where the supervisor cannot see it or have ready access to it;
  - (k) maintain proper records of the diving operation. This must include the particulars in Appendix 2;
  - (l) maintain the diving operation record throughout the diving operation for which they are appointed.

## **Regulation 11 Power of supervisor to give directions**

**Regulation 11**

*A supervisor may, whilst supervising the diving operation in respect of which he is appointed, give such reasonable directions to any person taking part in that operation or who may affect the safety of that operation as are necessary to enable him to comply with regulation 10.*

**ACOP 11**

**138** The supervisor is entitled to give reasonable orders in relation to health and safety to any person taking part in the diving operation. These orders take precedence over any company hierarchy. These orders could include instructing unnecessary personnel to leave a control area and instructing personnel to operate plant.



## Divers

### Regulation 12 Duties of and restrictions on divers

Regulation 12

- (1) *No diver shall dive in a diving project unless he –*
- (a) *has, subject to paragraph (2), an approved qualification which is valid for any activity he may reasonably expect to carry out while taking part in the diving project;*

### Regulation 14 Approved qualifications

Regulation 14

- (1) *The Executive may approve in writing such qualification as it considers suitable for the purpose of ensuring the adequate competence of divers for the purposes of regulation 12(1)(a).*

ACOP 12, 14

#### Qualifications

**139** All divers at work must hold an approved diving qualification suitable for the work that they intend to do. A list of current approved qualifications is available on the HSE diving website (see 'Further reading').

### Regulation 13 Duties of and restrictions on persons engaged in a diving project

Regulation 13

- (1) *No person shall dive in a diving project –*
- (a) *unless he is competent to carry out safely and without risk to health any activity he may reasonably expect to carry out while taking part in the diving project;*

ACOP 13

#### Competence

**140** Divers must be competent to do the work allocated to them within the diving project plan. A basic level of diving competence may be assumed from a diver who has an approved diving qualification. They should have a good understanding of diving physics and physiology and decompression. They should be able to recognise the signs and symptoms of diving-related illnesses in themselves and others and initiate appropriate treatment. They should be able to carry out a diver rescue, including the performance of resuscitation techniques. They should be able to initiate appropriate actions in the event of an emergency.

**Regulation 13**

(2) *Every person engaged in a diving project shall comply with –*

(a) *any directions given to him by a supervisor under regulation 11;*

**ACOP 13**

**141 All people in the dive team have a responsibility to co-operate with the supervisor and to follow any reasonable directions and instructions that the supervisor gives.**

## **Regulation 12 Duties of and restrictions on divers**

**Regulation 12**

(3) *Every diver engaged in a diving project shall –*

(a) *maintain a daily record of his diving;*

**ACOP 12**

**142 Divers' daily records (logs) must include the particulars in Appendix 3.**

## **Regulation 17 Transitional and supplementary provisions**

**Regulation 17**

(1) *Any certificate of training and any certificate of medical fitness to dive issued, or having effect as if issued, under the Diving Operations at Work Regulations 1981 ("the 1981 Regulations") shall have effect, subject to any conditions or limitations contained in any such certificate, as if it were, as the case may be, an approved qualification or a certificate of medical fitness to dive for the purposes of these Regulations.*

**ACOP 17**

**143 The main and restricted HSE certificates issued under the Diving Operations at Work Regulations 1981 are still legally valid.**

**144 Transitional certificates issued under regulation 15 of the Diving Operations at Work Regulations 1981 are still legally valid.**

**145 Certificates issued by the Manpower Services Commission (MSC) and the Training Services Agency (TSA) are still legally valid.**

## Medical checks

### Regulation 12 Duties of and restrictions on divers

**Regulation 12**

- (1) *No diver shall dive in a diving project unless he –*
- (b) *has a valid certificate of medical fitness to dive.*

**ACOP 12**

146 All divers at work must have a valid certificate of medical fitness to dive issued by a HSE medical examiner of divers, generally known as Approved Medical Examiner of Divers (AMED). The certificate of medical fitness to dive is a statement of the diver's fitness to perform work underwater, and is valid for as long as the doctor certifies, up to a maximum of 12 months. A list of HSE medical examiners is available on the HSE diving website (see 'Further reading').

147 Where an annual medical examination is carried out less than a month before the expiry of the current medical certificate to dive, the start date of the new certificate may begin from the expiry date of the current certificate.

148 Every diver or person who is likely to be subject to hyperbaric conditions as routine rather than in an emergency, must have a valid certificate of medical fitness to dive.

### Regulation 15 Certificate of medical fitness to dive

**Regulation 15**

- (1) *A certificate of medical fitness to dive is a certificate from a medical examiner of divers (or from the Executive following an appeal under paragraph (4)) that the person issuing the certificate considers the person named in the certificate to be fit to dive.*

**ACOP 15**

149 The medical examination and assessment look at the diver's overall fitness to dive. These include the main systems of the body – cardiovascular system, respiratory system and central nervous system – as well as the ears, nose and throat, vision, dentition, and the person's capacity for exercise.

### Regulation 13 Duties of and restrictions on persons engaged in a diving project

**Regulation 13**

- (1) *No person shall dive in a diving project –*
- (b) *if he knows of anything (including any illness or medical condition) which makes him unfit to dive.*

**ACOP 13**

150 Divers whose medical fitness may be in doubt for any reason, for example, fatigue, minor injury, recent medical treatment or who are taking any medication, must inform their supervisor. Even a minor illness, such as the common cold or a dental problem, can have serious effects on a diver under pressure, and should be reported to the supervisor before the start of a dive. Medications routinely taken may have significant side effects in hyperbaric environments. Supervisors should seek guidance from the diving contractor or the company's medical adviser if there is doubt about a diver's fitness to dive.

151 Divers who have suffered an incident of DCI should record details of the treatment they received in their daily record (log book). They should show this to the supervisor before taking part in their first dive after the treatment in order that a check can be made of their fitness to return to diving. Supervisors should seek guidance from the diving contractor or the company's medical adviser if there is doubt about a diver's fitness to dive.

### Regulation 15 Certificate of medical fitness to dive

**Regulation 15**

(6) *In this regulation, "medical examiner of divers" means a medical practitioner who is, or who falls within a class of medical practitioners which is, for the time being, approved in writing by the Executive for the purposes of this regulation; and any such approval may be given generally or restricted to any class of diver or dive.*

**ACOP 15**

152 HSE approves doctors to carry out diving medical examinations. A list of these medical examiners is available on the HSE diving website (see 'Further reading').

## Appendix 1 Notice of Approval

By virtue of section 16(4) of the Health and Safety at Work etc Act 1974, and with the consent of the Secretary of State for Work and Pensions, the Health and Safety Executive has on 13 August 2014 approved the revised Code of Practice entitled *Commercial diving projects inland/inshore* (Second edition, 2014, L104).

The revised Code of Practice gives practical guidance on the requirements of the Diving at Work Regulations 1997 (SI 1997/2776) with respect to regulation 3 of the Management of Health and Safety at Work Regulations 1999 (SI 1999/3242). The Code of Practice comes into effect on 8 December 2014.

This revised edition replaces the previous edition entitled *Commercial diving projects inland/inshore* (First edition), which came into effect on 1 April 1998.

Signed

TERESA QUINN  
Secretary to the Board of the Health and Safety Executive

2 December 2014

## Appendix 2 Particulars to be included in the diving operation record

- 1 Name and address of the diving contractor
- 2 Date to which entry relates and name of the supervisor or supervisors (an entry must be completed daily by each supervisor for each diving operation)
- 3 Location of the diving operation, including the name of any vessel from which diving is taking place
- 4 Names of those taking part in the diving operation as divers and other members of the dive team
- 5 Approved Code of Practice that applies to the diving operation
- 6 Purpose of the diving operation
- 7 Breathing apparatus and breathing mixture used by each diver in the diving operation
- 8 Time at which each diver leaves atmospheric pressure and returns to atmospheric pressure plus their bottom time
- 9 Maximum depth which each diver reached
- 10 Decompression schedule containing details of the pressures (or depths) and the duration of time spent by divers at those pressures (or depths) during decompression
- 11 Emergency support arrangements
- 12 Any emergency or incident of special note which occurred during the diving operation, including details of any decompression illness and the treatment given
- 13 Details of the pre-dive inspection of all plant and equipment being used in the diving operation
- 14 Any defect recorded in the functioning of any plant used in the diving operation
- 15 Particulars of any relevant environmental factors during the diving operation
- 16 Any other factors likely to affect the safety or health of any persons engaged in the diving operation
- 17 Name and signature of the supervisor completing the record
- 18 Affix company stamp (if appropriate)

## Appendix 3 Details to be included in the diver's daily record (log)

Names and addresses should be printed and in block capitals.

- 1 Name and signature of the diver
- 2 Date to which entry relates
- 3 Name and address of the diving contractor
- 4 Name and signature of the supervisor(s) for that dive
- 5 Location of the diving project, including the name of any vessel from which diving is taking place
- 6 The maximum depth reached on each occasion
- 7 The time the diver left the surface, the bottom time, and the time the diver reached the surface on each occasion
- 8 Where the dive includes time spent in a compression chamber, details of any time spent outside the chamber at a different pressure
- 9 Breathing apparatus and breathing mixture used by the diver
- 10 Any decompression schedules followed by the diver on each occasion
- 11 Any work done by the diver on each occasion, and the plant (including any tools) used in that work
- 12 Any episode of barotrauma, discomfort or injury suffered by the diver including details of any decompression illness and the treatment given
- 13 Any emergency or incident of special note which occurred during the diving operation
- 14 Any other factor relevant to the diver's health or safety
- 15 Affix company stamp after the daily record has been signed by the diver and the supervisor(s)

## Appendix 4 Relevant legislation

This legislation covers all industries and may be relevant to diving projects. This list is not exhaustive. You can find details of relevant guidance on all these pieces of legislation on HSE's website at [www.hse.gov.uk](http://www.hse.gov.uk). Statutory Instruments can be viewed free of charge at [www.legislation.gov.uk](http://www.legislation.gov.uk) where you can also search for changes to legislation.

- 1 *Diving at Work Regulations 1997* – cover all divers when one or more divers are at work, whether employed or self-employed.
- 2 *The Health and Safety at Work etc Act 1974* – sets out the general duties that employers and the self-employed have towards employees and members of the public, and the duties that employees have to themselves and to each other.
- 3 *The Health and Safety at Work etc Act 1974 (Application outside Great Britain) Order 2013* – the Order applies Sections 1–59 and 80–82 (the 'prescribed provisions') of the Health and Safety at Work etc Act 1974 (HSWA) beyond the mainland of Great Britain to specified offshore areas and work activities and maintains HSE's ability to regulate work activities associated with 'energy structures' (wind farms) and emerging energy technologies.
- 4 *Management of Health and Safety at Work Regulations 1999* – require employers to carry out risk assessments, make arrangements to implement necessary measures, appoint competent people and arrange for appropriate information and training.
- 5 *Manual Handling Operations Regulations 1992* – cover the moving of objects by hand or bodily force.
- 6 *Personal Protective Equipment at Work Regulations 1992* – require employers to provide appropriate protective clothing and plant for their employees.
- 7 *Provision and Use of Work Equipment Regulations 1998* – require that equipment provided for use at work including machinery is safe.
- 8 *Workplace (Health, Safety and Welfare) Regulations 1992* – cover a wide range of issues such as ventilation, heating, lighting, seating and welfare facilities.
- 9 *Employers' Liability (Compulsory Insurance) Act 1969* – requires employers to take out insurance to cover their liability for accidents and ill health sustained by their employees.
- 10 *Health and Safety (First-Aid) Regulations 1981* – cover requirements for first aid.
- 11 *Health and Safety Information for Employees (Modifications and Repeals) Regulations 1995* – require employers to display a poster (or provide a leaflet) telling employees what they need to know about health and safety.



12 *Control of Noise at Work Regulations 2005* – require employers to take action to protect employees from hearing damage.

13 *Electricity at Work Regulations 1989* – require people in control of electrical systems to ensure they are safe to use and maintained in a safe condition.

14 *Health and Safety (Training for Employment) Regulations 1990* – set out how certain people being trained for employment should be treated for the purposes of health and safety law.

15 *Construction (Design and Management) Regulations 2007* – cover safe systems of work on construction sites.

16 *Control of Substances Hazardous to Health Regulations 2002* – require employers to assess the risks from hazardous substances and take appropriate precautions.

17 *Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013* – require employers to report and keep records of work-related accidents which cause death, serious injuries, diagnosed cases of certain industrial diseases and certain dangerous occurrences.

18 *The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009* – regulate the transport and labelling of cylinders used for the transportation of pressurised gas.

19 *Pressure Systems Safety Regulations 2000* – impose safety requirements in relation to pressure systems used or intended to be used at work. These Regulations may apply to pressure systems that are not used in, but which are ancillary to, the diving project such as compressor systems used to fill breathing gas cylinders.

## References and further reading

### References

- 1 *The Diving at Work Regulations 1997* SI 1997/2776 The Stationery Office  
[www.legislation.gov.uk](http://www.legislation.gov.uk)
- 2 *Health and Safety at Work etc Act 1974 (c.37)* The Stationery Office 1974  
[www.legislation.gov.uk](http://www.legislation.gov.uk)
- 3 *Commercial diving projects offshore. Diving at Work Regulations 1997. Approved Code of Practice and guidance L103* (Second edition) HSE Books 2014  
ISBN 978 0 7176 6592 1 [www.hse.gov.uk/pubns/books/l103.htm](http://www.hse.gov.uk/pubns/books/l103.htm)
- 4 *Recreational diving projects. Diving at Work Regulations 1997. Approved Code of Practice and guidance L105* (Second edition) HSE Books 2014  
ISBN 978 0 7176 6594 5 [www.hse.gov.uk/pubns/books/l105.htm](http://www.hse.gov.uk/pubns/books/l105.htm)
- 5 *Media diving projects. Diving at Work Regulations 1997. Approved Code of Practice and guidance L106* (Second edition) HSE Books 2014  
ISBN 978 0 7176 6595 2 [www.hse.gov.uk/pubns/books/l106.htm](http://www.hse.gov.uk/pubns/books/l106.htm)
- 6 *Scientific and archaeological diving projects. Diving at Work Regulations 1997. Approved Code of Practice and guidance L107* (Second edition) HSE Books 2014  
ISBN 978 0 7176 6596 9 [www.hse.gov.uk/pubns/books/l107.htm](http://www.hse.gov.uk/pubns/books/l107.htm)
- 7 *The Work in Compressed Air Regulations 1996* SI 1996/1656 The Stationery Office  
[www.legislation.gov.uk](http://www.legislation.gov.uk)
- 8 *The Management of Health and Safety at Work Regulations 1999*  
SI 1999/3242 The Stationery Office [www.legislation.gov.uk](http://www.legislation.gov.uk)
- 9 *First aid at work: The Health and Safety (First-Aid) Regulations 1981. Guidance on Regulations L74* (Third edition) HSE Books 2013 ISBN 978 0 7176 6560 0  
[www.hse.gov.uk/pubns/books/l74.htm](http://www.hse.gov.uk/pubns/books/l74.htm)

### Further reading

HSE's diving website: [www.hse.gov.uk/diving](http://www.hse.gov.uk/diving)

*Are you involved in a diving project at work? A brief guide to complying with health and safety law* Leaflet INDG266(rev2) HSE Books 2015  
[www.hse.gov.uk/pubns/indg266.htm](http://www.hse.gov.uk/pubns/indg266.htm)

*First aid at work: Your questions answered* Leaflet INDG214(rev2) HSE Books 2014  
[www.hse.gov.uk/pubns/indg214.htm](http://www.hse.gov.uk/pubns/indg214.htm)

### **Diving project plan and risk assessment**

#### **HSE guidance**

*General hazards* Diving Information Sheet DVIS1 HSE 1998

[www.hse.gov.uk/pubns/dvis1.pdf](http://www.hse.gov.uk/pubns/dvis1.pdf)

(Sections on abrasive cutting discs and prevention of explosions during oxy-arc cutting operations)

*Breathing gas management* Diving Information Sheet DVIS3 HSE 1998

[www.hse.gov.uk/pubns/dvis3.pdf](http://www.hse.gov.uk/pubns/dvis3.pdf)

*Exposure limits for air diving operations* Diving Information Sheet DVIS5 HSE 1998

[www.hse.gov.uk/pubns/dvis5.pdf](http://www.hse.gov.uk/pubns/dvis5.pdf)

*Differential pressure hazards in diving* Diving Information Sheet DVIS13 HSE 2010

[www.hse.gov.uk/pubns/dvis13.pdf](http://www.hse.gov.uk/pubns/dvis13.pdf)

*The noise exposure of working divers: Guidance on the Control of Noise at Work Regulations 2005* Diving Information Sheet DVIS14 HSE 2011

[www.hse.gov.uk/pubns/dvis14.pdf](http://www.hse.gov.uk/pubns/dvis14.pdf)

*EH40/2005 Workplace exposure limits: Containing the list of workplace exposure limits for use with the Control of Substances Hazardous to Health Regulations (as amended)* Environmental Hygiene Guidance Note EH40 (Second edition) HSE Books 2011 ISBN 978 0 7176 6446 7 [www.hse.gov.uk/pubns/books/eh40.htm](http://www.hse.gov.uk/pubns/books/eh40.htm)

*Respiratory protective equipment at work: A practical guide* HSG53 (Fourth edition) HSE Books 2013 ISBN 978 0 7176 6454 2 [www.hse.gov.uk/pubns/books/hsg53.htm](http://www.hse.gov.uk/pubns/books/hsg53.htm)

#### **Non-HSE guidance**

*Attachment of loads to lifting hooks during diving operations* AODC 018 Rev 1

International Marine Contractors Association 1995 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

*Diving where there is poor surface visibility* AODC 034 International Marine

Contractors Association 1985 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

*The effects of underwater currents on divers' performance and safety* AODC 047

International Marine Contractors Association 1987 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

*Protection of water intake points for diver safety* AODC 055 International Marine

Contractors Association 1991 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

*In-water diver monitoring* DMAC 02 Diving Medical Advisory Committee 1979

[www.dmac-diving.org/guidance/](http://www.dmac-diving.org/guidance/)

*Accidents with high pressure water jets* DMAC 03 Diving Medical Advisory

Committee 1981 [www.dmac-diving.org/guidance/](http://www.dmac-diving.org/guidance/)

*Recommendations for flying after diving* DMAC 07 Rev 1 Diving Medical Advisory

Committee 2001 [www.dmac-diving.org/guidance/](http://www.dmac-diving.org/guidance/)

*Thermal stress in relation to diving* DMAC 08 Diving Medical Advisory Committee

1981 [www.dmac-diving.org/guidance/](http://www.dmac-diving.org/guidance/)

*Guidelines for oxy-arc cutting* IMCA D 003 Rev 1 International Marine Contractors

Association 2011 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

*Underwater air lift bags* IMCA D 016 Rev 3 International Marine Contractors Association 2007 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

*Diving in contaminated waters* IMCA D 021 Rev 1 International Marine Contractors Association 2004 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

*Use of battery-operated equipment in hyperbaric conditions* IMCA D 041 International Marine Contractors Association 2006 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

*Code of practice for the safe use of electricity underwater* IMCA D 045 International Marine Contractors Association 2010 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

*Surface supplied diving operations using Nitrox* IMCA D 048 International Marine Contractors Association 2012 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

*Code of Practice for the use of high pressure water jetting equipment by divers* IMCA D 049 International Marine Contractors Association 2012 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

*Remotely-operated vehicle intervention during diving operations* IMCA D 054 International Marine Contractors Association 2014 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

*Guidelines for lifting operations* IMCA SEL 019/M187 International Marine Contractors Association 2007 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

### **Dive teams and associated working practice**

#### **HSE guidance**

*Diving in benign conditions, and in pools, tanks, aquariums and helicopter underwater escape training* Diving Information Sheet DVIS8 HSE 1999 [www.hse.gov.uk/pubns/dvis8.pdf](http://www.hse.gov.uk/pubns/dvis8.pdf)

### **Diving plant**

#### **HSE guidance**

*Safe use of lifting equipment. Lifting Operations and Lifting Equipment Regulations 1998. Approved Code of Practice and guidance (Second edition)* L113 HSE Books 2014 ISBN 978 0 7176 6586 0 [www.hse.gov.uk/pubns/books/l113.htm](http://www.hse.gov.uk/pubns/books/l113.htm)

*Diving system winches* Diving Information Sheet DVIS2 HSE 1998 [www.hse.gov.uk/pubns/dvis2.pdf](http://www.hse.gov.uk/pubns/dvis2.pdf)

*Breathing gas management* Diving Information Sheet DVIS3 HSE 1998 [www.hse.gov.uk/pubns/dvis3.pdf](http://www.hse.gov.uk/pubns/dvis3.pdf)

*Compression chambers* Diving Information Sheet DVIS4 HSE 1998 [www.hse.gov.uk/pubns/dvis4.pdf](http://www.hse.gov.uk/pubns/dvis4.pdf)

*Diving in benign conditions, and in pools, tanks, aquariums and helicopter underwater escape training* Diving Information Sheet DVIS8 HSE 1999 [www.hse.gov.uk/pubns/dvis8.pdf](http://www.hse.gov.uk/pubns/dvis8.pdf)

*Divers breathing air standards and the frequency of examination and tests* Diving Information Sheet DVIS9(rev1) HSE 2008 [www.hse.gov.uk/pubns/dvis9.pdf](http://www.hse.gov.uk/pubns/dvis9.pdf)

*Diving cylinders: guidance on their manufacture, inspection and carriage* Diving Information Sheet DVIS11 HSE 2009 [www.hse.gov.uk/pubns/dvis11.pdf](http://www.hse.gov.uk/pubns/dvis11.pdf)

*Cleaning of diving equipment* Diving Information Sheet DVIS12 HSE 2010  
[www.hse.gov.uk/pubns/dvis12.pdf](http://www.hse.gov.uk/pubns/dvis12.pdf)

#### **Non-HSE guidance**

*Minimum specification for surface compression chambers for inland/inshore compression chambers for inland/inshore diving* ADC8/97 Association of Diving Contractors UK [www.adc-uk.info/website/info/publications](http://www.adc-uk.info/website/info/publications)

*Minimum criteria to be met by a surface supply inland/inshore air diving panel for supply inland/inshore air diving panel for diving operations in the UK* ADC 5/95  
[www.adc-uk.info/website/info/publications](http://www.adc-uk.info/website/info/publications)

*Guidelines for Lifting Operations* IMCA M 187 International Marine Contractors Association 2007 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

*Guidelines for Lifting Operations* IMCA SEL 019 International Marine Contractors Association 2007 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

#### **Maintenance of diving plant**

##### **HSE guidance**

*Diving cylinders: Guidance on internal corrosion, fitting valves and filling* Diving Information Sheet DVIS10 HSE 2007 [www.hse.gov.uk/pubns/dvis10.pdf](http://www.hse.gov.uk/pubns/dvis10.pdf)

##### **Non-HSE guidance**

*Periodic examination of bail-out bottles* AODC 037 International Marine Contractors Association 1986 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

*Underwater air lift bags* IMCA D 016 Rev 3 International Marine Contractors Association 2007 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

*Code of practice for the initial and periodic examination, testing and certification of diving plant and equipment* IMCA D 018 Rev 1 International Marine Contractors Association 2014 [www.imca-int.com/diving-division](http://www.imca-int.com/diving-division)

#### **Medical checks**

##### **Non-HSE guidance**

*Assessing fitness to return to diving after decompression illness* DMAC 13 Rev 1 Diving Medical Advisory Committee 1994 [www.dmac-diving.org/guidance/](http://www.dmac-diving.org/guidance/)

## Glossary of terms and abbreviations

**Competence** Competence means having a combination of training, skills, knowledge and experience such that the person can do the job required in a safe and efficient manner.

**Hazard** A hazard is something with the potential to cause harm. This may include water, environmental factors, plant, methods of diving and other aspects of work organisation.

**Permit-to-work system** A formal written system used to control certain types of work which are identified as involving significant risk.

**Risk** A risk is the possibility that someone will be harmed by an identified hazard. The extent of the risk includes the numbers of people who might be affected by the risk.

**Risk assessment** A risk assessment is a careful examination of what may cause harm and an evaluation of precautions that can be taken to prevent harm.

**ADC** Association of Diving Contractors.

**AODC** Association of Offshore Diving Contractors (superseded by ADC and IMCA from 1 April 1995).

**DCI** Decompression illness.

**DMAC** Diving Medical Advisory Committee.

**DVIS** Diving Information Sheet.

**HSE** Health and Safety Executive.

**IMCA** International Marine Contractors Association.

**MSC** Manpower Services Commission.

**ROV** Remotely operated vehicle.

**SCUBA** Self-contained underwater breathing apparatus.

**SD** Surface decompression.

**TSA** Training Services Agency.

## Further information

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit [www.hse.gov.uk](http://www.hse.gov.uk). You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

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