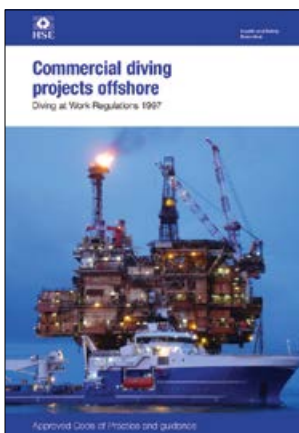


Commercial diving projects offshore

Diving at Work Regulations 1997

Approved Code of Practice and guidance



L103 (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.

This ACOP applies to all diving projects:

- at sea outside the UK territorial waters adjacent to Great Britain (generally 12 nautical miles from the low water line) which are covered by the Health and Safety at Work etc Act 1974 (Application outside Great Britain) Order 2013. This will include all diving operations in UK designated areas of the continental shelf undertaken in connection with offshore installations, energy structures, eg wind farms, emerging energy technologies, wells and pipeline works, and with those parts of mines which extend outside the 12-mile limit;
- at sea off or in connection with pipelines and structures used by the oil and gas industry within the 12-mile limit;
- where closed bell or saturation diving techniques are used (both offshore and inshore);
- where diving takes place from vessels maintaining station by the use of dynamic positioning;
- for all dives below 50 metres except for those covered by the Media, Recreational or Scientific and Archaeological ACOPs.

This ACOP has been revised to simplify some of the information, update the references and provide greater consistency across all of the diving at work ACOPs. 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).¹ 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:

- (a) at sea outside the United Kingdom territorial waters adjacent to Great Britain (generally 12 nautical miles from the low water line) which are covered by the Health and Safety at Work etc Act 1974 (Application outside Great Britain) Order 2013.² This will include all diving operations in UK designated areas of the continental shelf undertaken in connection with offshore installations, energy structures, eg wind farms, emerging energy technologies (EETs), wells and pipeline works, and with those parts of mines which extend outside the 12-mile limit;
- (b) at sea off or in connection with pipelines and structures used by the oil and gas industry within the 12-mile limit;
- (c) where closed bell* or saturation diving techniques† are used (both offshore and inshore);
- (d) where diving takes place from vessels maintaining station by the use of dynamic positioning;
- (e) for all dives below 50 metres except for those diving projects covered by the following ACOPs:
 - (i) *Recreational diving projects*;³
 - (ii) *Media diving projects*;⁴
 - (iii) *Scientific and archaeological diving projects*.⁵

3 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 (see paragraph 8). Revisions in this ACOP have also reflected changes in technology and industry practice. The most significant changes relate to:

- (a) closed bell projects. Clarification of bell run duration is addressed and the requirement for a refreshment break has been included;
- (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) bell operations. Clarification of the requirements for a surface standby diver is provided;

* A diving bell is a submersible compression chamber used for transferring divers under pressure to and from the worksite.

† Saturation diving is the diving technique where the diver has reached the full saturation state for the pressure and breathing mixture being used. When this state has been reached the time required for decompression is not further increased in relation to the duration of the dive.

- (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

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

5 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 (the HSW Act).⁶ 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.

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

Presentation

7 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

8 There are four other ACOPs that cover diving at work:

- (a) *Commercial diving projects inland/inshore;*⁷
- (b) *Recreational diving projects;*³
- (c) *Media diving projects;*⁴
- (d) *Scientific and archaeological diving projects.*⁵

Sources of information

9 The ACOPs do not cover the detailed technical aspects of controlling the risks from diving at work. Separate, non-statutory 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.

10 HSE also references other guidance that is published by 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

Regulation	2
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(1) *“diver” means a person at work who dives;*

Guidance	2
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11 ‘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 when at least one diver is at work.

Regulation	2
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(2) *For the purposes of these Regulations a person “dives” if –*

(a) *he enters –*

(i) *water or any other liquid; or*

(ii) *a chamber in which he is subject to pressure greater than 100 millibars above atmospheric pressure; and*

(b) *in order to survive in such an environment he breathes in air or other gas at a pressure greater than atmospheric pressure;*

Guidance	2
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12 Environments such as scientific clean rooms or submersible craft subjected to an internal pressure of less than 100 millibars above local ambient atmospheric pressure are not covered by the Diving Regulations.

Regulation	2
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(1) *“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;*

Guidance	2
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13 ‘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.

14 A diving project can apply to both a continuous period of elevated pressure, as in saturation diving, and to a number of diving operations, possibly taking place over several days, where the divers are not under continuous elevated pressure.

15 The diving project does not necessarily finish once the last diver has returned to atmospheric pressure. Most 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.

Regulation 2

(1) *“the 1995 Order” means the Health and Safety at Work etc. Act 1974 (Application outside Great Britain) Order 1995;^(a)*

(a) The reference to the 1995 Order is now treated as a reference to the Health and Safety at Work etc Act 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. They also cover 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 provider 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 Compressed Air Regulations 1996 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. The diving contractor must 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
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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
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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 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 will usually be the operator or owner of a proposed or existing installation or pipeline where diving work is going to take place, or a contractor acting on behalf of the operator or owner. If the operator or owner appoints an on-site representative, they should satisfy themselves that such a 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) the manager of an offshore installation from or near which a diving project is carried out;
- (d) a consultant acting for the client, operator, owner, or contractor;
- (e) 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;
- (f) a superintendent, or other similar person, provided by the diving contractor who may or may not be a member of the dive team, but nevertheless has a responsibility to ensure that the diving project is conducted safely because they are in overall control of the project. Such a person must be competent for the task. (See paragraph 92 for more information about superintendents.)

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;

ACOP

4

- (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 ship propellers, water intakes or discharge points causing suction or turbulence, gas flare mechanisms that may activate without warning, or plant liable to start operating automatically. The diving contractor should be informed of the location and nature of such hazards. This information should be provided in sufficient time so that it can be taken into account by the diving contractor when preparing the risk assessment before producing the diving project plan. 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 affect the safety of the diving project, for example, they may need to arrange for the suspension of loading or unloading of vessels, seismic operations, scaffolding work or similar 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 drill cuttings on the seabed. 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, for example vessel movement, so that diving can be suspended if the diving site is, or may be, endangered.

26 When diving from a dynamically positioned (DP) vessel, the responsible person on the DP control panel should inform the supervisor of any possible change in position-keeping ability as soon as it is known.

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 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 more than one self-employed diver for the diving project, it must be established and recorded in writing who will be the designated diving contractor for that project.

30 The name of the diving contractor should be entered clearly on all diving project records. The name should also be notified in writing to the other personnel with responsibility for any location from or in the vicinity of which diving projects are carried out.

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

- 31 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;
 - (d) a suitable diving project plan is prepared which includes emergency and contingency plans. The diving project plan should be authorised and dated by a responsible person acting on behalf of the diving contractor (see 'Diving project plan and risk assessment');
 - (e) the supervisor and dive team are fully briefed on the project and aware of the contents of the 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 qualified and competent (see 'Supervisors' and 'Divers');
 - (h) supervisors are appointed in writing and the extent of their control fully documented (see 'Supervisors');
 - (i) a suitable mobilisation and familiarisation programme is completed by all the members of the dive team. Other personnel involved in the diving 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) 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.*

ACOP 7

32 Before any person acts as a diving contractor they must ensure that HSE is provided with information about their identity and where they can be contacted. A diving contractor is also required to inform HSE of any subsequent changes to this information.

Guidance 7

33 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 the person appointed 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.*

ACOP 6, 8

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

Risk assessment

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

36 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.

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

ACOP

6, 8

Safety at Work Regulations 1999 (the Management Regulations).⁸ 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

38 Based on this information, the diving project plan must state how those 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 must 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 include procedures for conducting reviews of the site and updating the specific risk assessments.

39 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 unconscious divers from the water.

40 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.

41 Some examples of hazards and risks are given in paragraphs 42–88. This is not a complete list of all hazards or all measures needed to control risk. In special circumstances, or if certain contingencies arise, more stringent safeguards may be needed.

General

Self-contained underwater breathing apparatus (SCUBA)

42 SCUBA has inherent limitations and difficulties, such as limited breathing gas supplies, and is unsuitable for activities covered by this ACOP.

Use of compressed air or gas mixtures

43 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 pressure 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.

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Exposure limits for surface-orientated diving

44 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' below. Use of this table has resulted in a significant reduction in the incidence of DCI, and dive plans should incorporate these maximum time limits.

45 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 which should be used to establish bottom time limits.

46 Closed bell diving techniques should be used when diving deeper than 50 metres.

Table 1 Maximum bottom time limitations for surface decompression (SD), in-water decompression and transfer under pressure (TUP) decompression diving

Depth		Bottom time† limits (minutes)	
Metres	Feet	TUP	SD and in water
0-12	0-40	240	240
15	50	240	180
18	60	180	120
21	70	180	90
24	80	180	70
27	90	130	60
30	100	110	50
33	110	95	40
36	120	85	35
39	130	75	30
42	140	65	30
45	150	60	25
48	160	55	25
51	170	50	20

† Bottom time is the total elapsed time from when the diver is first exposed to a pressure greater than atmospheric, ie (a) when leaving the surface with an open device; (b) on the start of pressurisation when a closed device is employed in the observation mode, to the time (next whole minute) that the diver begins decompression (measured in minutes).

Water flow, intakes and discharges

47 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, 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.

ACOP

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Contaminated water

48 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

49 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 operations should be suspended because of restricted visibility.

Weather

50 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

51 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

52 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

53 Divers often come into contact with plant, including battery-powered equipment, operated by or carrying electricity. Battery-operated equipment used inside compression chambers can also be a hazard. 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.

54 Recharging lead-acid batteries generates hydrogen which can present an explosion hazard in confined spaces. Adequate ventilation should be provided.

High-pressure water jetting

55 Even an apparently minor accident with this equipment 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.

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Oxy-arc cutting and burning operations

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

Diving from dynamically positioned vessels

59 Diving from dynamically positioned vessels can be hazardous to divers because of the presence of rotating propellers and thrusters. Practical steps should be taken to prevent a diver or their umbilical coming into contact with a thruster or propeller.

60 Any vessel operating on dynamic positioning should meet industry technical and operational standards.

Communications

61 In an emergency people tend to revert to their native language. If team members do not speak the same language this can cause an obvious risk. The diving project plan should state the language that is to be used during the diving project. All team members should be able to communicate clearly with each other at all times, particularly during emergencies.

Breathing gases

Quantity of gases

62 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 an agreed minimum.

Quality of gases

63 There should be procedures for checking and maintaining gas purity standards.

Levels of oxygen in helium and nitrogen

64 Pure helium or nitrogen should not be used in diving operations except as a calibration gas or for a specific operational requirement. A small percentage of oxygen should be present in helium or nitrogen. The industry norm is 2%.

65 When an oxygen-helium or oxygen-nitrogen mixture is used as the diver-worn reserve supply, it should contain a percentage of oxygen that allows it to be breathable over the largest possible depth range.

Contents of gas mixes

66 Breathing gases should comply with appropriate national, European or international standards. Breathing gases coming from suppliers should be clearly marked to indicate contents, colour-coded and accompanied by an analysis certificate. The contents should not be accepted as correct until a competent member of the dive team has analysed at least the oxygen content. This analysis should be conducted on delivery and immediately before use of the gas.

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Saturation diving

Lost closed bell contingency plan

67 A contingency plan should exist for the relocation and recovery of a lost closed bell. This should identify the role of the diving contractor and other personnel, and the provision of specific equipment such as locators.

Hyperbaric evacuation

68 In an emergency, divers in saturation cannot be evacuated by the same methods as other crew members. Special arrangements and procedures should be made to evacuate them safely while keeping them under pressure, for example in a chamber or lifeboat capable of being removed from the worksite to a safe location while maintaining life support for a minimum of 72 hours. The exact design of such equipment and its method of deployment will depend on a number of factors including the facilities available, the number of divers to be evacuated and the location of the worksite.

69 Additional safety requirements may be necessary for those personnel conducting the evacuation.

Length of diver's umbilical

70 The length of the diver's umbilical in relation to the worksite should be included in the diving project plan, particularly where an emergency situation might require rapid location and recovery of a diver. Where a diver's movements need to be limited due to the presence of underwater hazards, an in-water tender or other means of limiting diver movement may be required.

71 When a diving bell is being used from a dynamically positioned vessel, fouling and snagging hazards in relation to umbilical length should also be considered.

Transfer under pressure

72 The transfer of divers or equipment into or out of the saturation chambers, or between chambers under pressure, increases the risk of catastrophic depressurisation. Internal doors, that is those between the transfer chamber and the trunking to the diving bell and those separating living chambers within the chamber complex, should be kept closed at all times except when divers are passing through them.

Medical and physiological considerations

Liaison with a doctor

73 The situation where a member of the dive team is injured or becomes ill but a doctor is not available at the worksite should be considered. This should include, for example, an arrangement to allow the personnel at the site to communicate by radio or telephone with the diving contractor's medical adviser, and the pre-agreement of a suitable method of transferring information from the site to a doctor.

Treatment of patients in a compression chamber

74 A seriously ill or injured diver in a compression chamber cannot be treated in the same way as at atmospheric pressure. If the required treatment cannot be administered by the personnel at the worksite, trained medical staff and specialised equipment should be transported to the casualty. Treatment should be given to the injured diver inside the compression chamber. The diver should not be decompressed or transferred to any other location until in a stable condition.

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Diver monitoring

75 Supervisors should monitor divers' breathing patterns and receive verbal reports from divers of their condition.

Noise exposure

76 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.

Seismic operations and sonar transmissions

77 If there is any possibility of sonar or seismic activity in the vicinity of a diving project, guidelines for diver safety should be in place.

Decompression illness

78 Divers are at risk of DCI. It is difficult to treat DCI if access to recompression facilities is not immediately available. The diving contractor should identify the arrangements in place for the treatment of decompression illness. Divers should remain close to suitable recompression facilities after completion of their dive in accordance with the decompression tables being used.

Altitude changes

79 Restrictions on travelling/flying after diving should be identified in the company's procedures and be in accordance with the decompression tables being used and/or industry guidance.

Thermal stress

80 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. For example, divers may be provided with suitable passive or active heating, such as thermal undergarments and a well-fitting 'dry' diving suit, or a hot-water suit. 'Wet' suits have limited application for diving within the scope of this ACOP.

81 Divers who breathe oxygen and helium mixtures require active heating. Their inspired breathing gas will require active heating for dives deeper than 150 metres.

Duration of saturation exposure

82 When planning a dive, consider the previous saturation exposures of each diver and the time that they have spent at atmospheric pressure since completing their last saturation dive.

83 Because of the effects of long periods under pressure on the diver's health, safety and efficiency, divers should not be in saturation for a continuous period of more than 28 days including decompression.

84 Saturation diving should be planned so that each period spent in saturation by the diver is followed by a surface interval of equal duration. Shorter periods at atmospheric pressure may be acceptable but only in consultation with the diving contractor's hyperbaric medical adviser.

Familiarisation

85 When arriving at a dive site before the start of a project, all members of the dive team should familiarise themselves with the project, plant, and any other relevant details, for example the deck layout of a ship.

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86 A familiarisation programme should be included in the diving project plan. The personnel carrying out any explanations or training should be identified and their names recorded in the diving project plan. Record each individual in the dive team who has completed training.

87 The time required for familiarisation will depend on the experience of the individual and whether that individual has previously carried out the same job in that location. For example, a diver returning to the same offshore worksite after a period of leave may only require a few minutes to become acquainted with any changes since their leave; a supervisor arriving at an unfamiliar saturation diving worksite may require many hours or even days to become familiar with the site.

Use of checklists

88 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. Diving contractors will need to prepare and authorise the use of such checklists.

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

89 The diving contractor must specify the minimum 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. This may require additional deck support personnel and other management or associated technical support personnel, for example project engineers or vessel maintenance technicians.

90 The diving contractor and the supervisor must satisfy themselves that each diver has the competences for the specific tasks required during a particular diving operation. Previous experience of a similar task may demonstrate competence. Reliable evidence should be sought to establish the diver's experience. 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 should be aware of this and provide advice and support.

Overall management

91 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.

92 On projects where more than one supervisor is required, dedicated personnel may be needed to provide safe management control. These personnel are often called senior supervisors or superintendents, and may or may not perform 'hands-on' duties as part of the dive team.

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Dive team size

93 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 apparatus and the techniques to be used, any decompression requirements, the surface and underwater plant and safe systems of work being used, and the appropriate number required for safety.

Surface-supply

94 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 diver, a standby diver, a tender (see paragraph 99) for the working diver and a tender for the standby diver. Additional personnel may be required to operate or maintain specialised plant, for example winches, and to assist in an emergency.

Closed bell

95 A closed bell project normally requires, at a minimum, two operations: the first when the divers are in the bell or in the water under the control of a diving supervisor; and a second under the control of a life-support supervisor when the divers are in the saturation chambers. The minimum team size normally required is nine – a diving supervisor, a relief diving supervisor, a life-support supervisor, a life-support technician, two divers inside the bell, a diver on the surface, a tender for the surface diver and an equipment technician.

96 During closed bell diving operations two members of the on-shift team should be competent to supervise. One of these people should be the diving supervisor for the operation and the other should be in, or in the vicinity of, the dive control and able to provide assistance or relief as required. In agreement with the supervisor, the relief supervisor may take short (30 minutes) meal/comfort breaks. Any changeover of supervisor should be noted in the diving operation record and the relevant people notified, for example the divers and deck crew.

97 Divers in saturation should be given at least 12 continuous hours of rest in each 24-hour period. To prevent 'ratcheting', divers should only take part in one bell run routine of no more than 8 hours in any 24-hour period.

98 Bell runs should not exceed 8 hours from 'lock-off' to 'lock-on'. This is taken to be from when the clamp is first taken off until the clamp is reconnected ready for equalisation at the end of the bell run:

- (a) In a two-person bell each diver should spend no more than 4 hours out of the bell in the water.
- (b) In a three-person bell two divers may 'lock-out' together. The third person will undertake the duties of bellman and should remain dry unless called upon to 'lock-out' in an emergency. Each diver may spend up to a total of 6 hours out of the bell in the water so long as an adequate refreshment break is taken within 4 hours of the start of the 'lock-out'. The intention of the refreshment break is to ensure adequate hydration of a diver and to reduce fatigue.

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Tenders

99 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.

100 For umbilicals or lifelines that are tended from the surface, at least one tender is necessary for each diver in the water. For umbilicals tended from a basket or stage, one tender is required for every two divers in the water. In depths of less than 50 metres, a tender may not be required if an effective mechanical handling system for the umbilical is fitted to the bell or basket.

Standby diver

101 A standby diver should be in immediate readiness to provide any necessary assistance to the diver, whenever the diver is in the water. There should be one standby diver for every two divers in the water.

102 The standby diver should be dressed to enter the water, but does not have to wear a mask or helmet. This equipment should, however, be immediately to hand.

103 For surface-supplied diving, the standby diver should remain on the surface.

104 When using a standby diver from a closed bell, the standby diver should remain inside the bell.

105 All closed bell diving operations must have the capability of deploying a surface standby diver in an emergency unless effective alternative means are available to ensure that assistance can be rapidly provided at all depths within the working range of a surface diver.

Life-support personnel

106 Competent and qualified life-support personnel are needed to look after divers living in saturation. When divers are in saturation, at least one life-support person should be present at, and at least one other life-support person in the vicinity of, the life-support control point at all times.

107 A separate life-support supervisor must be appointed in writing by the diving contractor if the life-support control is remote from the diving control. Saturation diving supervisors may act as life-support supervisors provided they are qualified and competent to do so.

Overlapping functions

108 Individuals in a dive team may carry out more than one duty, provided that they are qualified and/or competent 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.

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Surface compression chambers

109 The controls of a compression chamber should only be operated by people who are competent to do so. Such competence will be achieved by a combination of training and experience. The training of divers and life-support technicians for the offshore sector will have covered the operation of such chambers. The degree of supervision provided should reflect the experience of the operator.

110 Supervisors may exercise full control over the operation of a compression chamber provided that they are able to clearly see and hear what is happening either directly or by video and audio links. If the supervisor cannot exercise this level of control, responsibility for that part of the diving project must be given to another supervisor.

Personnel not employed by the diving contractor

111 Personnel who are not employed by the diving contractor must be carefully considered for competence and suitability before being included in the dive team. Such personnel can create a hazard if they are unfamiliar with the diving contractor's procedures, rules and diving plant.

112 As an example, when a diving system forms an integral part of a vessel and the maintenance technicians are employed by the vessel owner, these personnel, whose principal duties will be associated with the diving project, may form part of the dive team. Such an arrangement should be confirmed in writing, together with the responsibilities of these individuals.

Trainees

113 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.

Hours of work

114 As part of the risk assessment, the effects of working time, such as fatigue, on the level of risk to which workers may be exposed should be evaluated. Fatigue is a result of prolonged mental or physical exertion. It can affect people's performance and impair their mental alertness, which could in turn endanger the safety of the dive team.

115 Factors to be taken into account include:

- (a) working patterns (eg availability of rest and refreshment breaks);
- (b) the nature and demands of the job;
- (c) the working environment;
- (d) the work activity;
- (e) sleep deprivation.

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116 A review of the risk assessment should be carried out when planning increases to the existing limits on hours of work, or before making any significant changes to working arrangements.

117 Measures which can control or mitigate undesirable effects on health or safety caused by fatigue include:

- (a) providing adequate staffing levels and relief systems to avoid regular working of excessive hours;
- (b) designing shift systems to minimise the potential for health and safety problems;
- (c) ensuring all personnel receive adequate rest periods, particularly at busy times;
- (d) allowing regular short breaks during shifts;
- (e) having contingency plans for unforeseen events.

118 Diving contractors should ensure that they have adequately assessed and provided for any health or safety problems that might arise.

First aid

119 Because emergency medical services are not immediately available, all of the divers should be competent in the provision of first aid and hold a current qualification in first aid. The minimum qualification considered acceptable would be a current first aid at work qualification 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)*.⁹

120 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.

121 Both these qualifications will be valid for three years. Divers covered by this ACOP should have satisfactorily completed requalification courses before their certificates run out.

122 At least one person in the dive team, other than the diver in the water, should be qualified to a diver medic standard. This person should not be the supervisor because of their need to be in direct control of the operation at all times. There are situations where additional members of the dive team should be qualified to a diver medic standard. This will include situations where the diver requiring first aid is inside a compression chamber and emergency medical assistance cannot be provided by normal emergency medical services. The diving contractor's risk assessment should consider the numbers required to be qualified to this standard.

Diving plant

Regulation 6 Duties of diving contractor

Regulation	6
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(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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123 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.

124 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 the appropriate national, European or international standards.

Gases

125 Gases stored in high-pressure cylinders are hazardous. Gas storage areas should be adequately protected, for example by the provision of fire deluge systems. Gases used for diving within the scope of this ACOP should be handled with appropriate care.

Storage cylinders

126 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

127 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.

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Divers' breathing gas supply systems

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

129 Whatever type of breathing apparatus is in use, each diver must 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.

130 An on-line oxygen analyser with a suitable alarm, for example an audible hi-lo alarm, should be fitted to the diver's gas supply line in the dive control area, even if the breathing medium is compressed air. This will assist in preventing the diver being supplied with the wrong percentage of oxygen. In addition, a carbon dioxide analyser with a suitable alarm should be fitted in all saturation diving projects using gas reclaim plant.

Emergency breathing gas cylinders

131 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

132 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.

133 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

134 All divers in the water require a communication system that allows direct voice contact with the supervisor on the surface. A speech processing system is required for divers who are breathing gas mixtures containing helium because it distorts speech.

135 All such communications should be recorded, and the recording kept until 48 hours after the diver has returned to the surface or the saturation living chamber. If an incident occurs during the dive, the communication record should be retained for any subsequent investigation.

Closed diving bells

136 Divers should be able to enter and leave the bell without difficulty, and it should be possible to recover an unconscious diver in an emergency. Divers should also be able to transfer under pressure from the bell to a compression chamber and vice versa.

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137 The bell requires:

- (a) doors that can be opened from either side and act as pressure seals;
- (b) valves, gauges and other fittings (made of suitable materials) to indicate and control the pressure within the bell. The external pressure will also need to be indicated to both the divers in the bell and the supervisor at the surface;
- (c) adequate equipment, including reserve facilities, to supply an appropriate breathing mixture to divers in and working from the bell;
- (d) equipment to light and heat the bell;
- (e) adequate first-aid equipment, and lifting plant, to enable a person in the bell to lift an unconscious or injured diver into the bell;
- (f) lifting gear to lower the bell to the depth of the diving project, maintain it at that depth, and raise it to the surface, without the occurrence of excessive lateral, vertical or rotational movement.

Breathing mixture supply

138 The main umbilical system of a diving bell should be fitted with suitable protective devices that will prevent uncontrolled loss of the atmosphere inside the diving bell if any or all of the components in the umbilical are ruptured.

Emergency recovery

139 Plant and procedures should be provided to enable the diving bell to be rescued if the bell is accidentally severed from its lifting wires and supply umbilical.

140 The bell should be equipped with a relocation device using the International Maritime Organisation (IMO) agreement recognised frequency to enable rapid location if the bell is lost.

141 The bell should be capable of sustaining the lives of trapped divers for at least 24 hours.

142 The bell will require an alternative method for returning to the surface if the main lifting gear fails. If weight-shedding is employed, the weights should be designed so that the divers inside the bell can shed them. This design should ensure that the weights cannot be shed accidentally.

Emergency markings on hyperbaric rescue systems

143 In an emergency, it is possible that personnel with no specialised diving knowledge will be the first to reach a hyperbaric rescue system. To ensure that rescuers provide suitable assistance and do not accidentally compromise the safety of the occupants, an IMO standard set of markings and instructions has been agreed. Such markings should be clearly visible when the system is afloat.

Medical equipment

144 A minimum amount of medical equipment is required at a diving site to provide first aid and medical treatment for the dive team. This minimum will

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depend on the type of diving and what is agreed with the diving contractor's medical adviser.

145 Particular problems exist if a diver becomes seriously ill or is badly injured while under pressure. Medical care in such circumstances is difficult and the diving contractor, in conjunction with the company's medical adviser, should prepare contingency plans for such situations.

Lifting plant to carry personnel

146 Particular safety standards should be applied when using lifting equipment to carry personnel, including any wires used for secondary or backup lifting. These wires should be non-rotating and have an ultimate breaking strain that is at least eight times that of the normal working load. Different ratios of breaking strain to working load may be necessary in accordance with appropriate national, European or international standards.

Winches

147 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.

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

Diving baskets and open-bottom bells

149 A basket or open-bottom 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. The basket should be fitted with suitable overhead protection and handholds.

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

Medical and equipment locks and diving bell trunkings

151 The inadvertent release of any clamping mechanism holding together two units under internal pressure may cause fatal injury to personnel both inside and outside the units. Suitable safety devices, for example pressure indicators and interlocks, should be provided to ensure that clamps cannot be released under pressure or the system pressurised before such clamps are fully secured.

Therapeutic recompression

152 A two-person two-compartment chamber at the worksite to provide suitable therapeutic recompression treatment should be provided for all diving projects within the scope of this ACOP.

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;*

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153 Diving plant is used under extreme conditions, including frequent 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

154 The diving contractor should establish a system of planned maintenance for plant. Maintenance arrangements should take into account both passage of time and usage. 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 name of the competent person.

155 A plant register should be maintained at the worksite with copies of all relevant certificates of examination and tests. It should contain any relevant additional information, for example details of the materials used to construct diving bells and compression chambers. It should also contain any details of any design limitations for use, for example maximum weather conditions, if applicable.

Periodic examination, testing and certification

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

Pre-dive visual inspection

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

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Cylinders used under water

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

Diving bell and basket lift wires

159 Frequent immersion in salt water, shock loading from waves and passing over multiple sheaves can cause wear and deterioration to the lift wires of diving bells and baskets if they are not properly maintained. Specialist advice on maintenance should be followed to ensure that wires remain fit for purpose.

Lift bags

160 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
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(1) *Only one supervisor shall be appointed to supervise a diving operation at any one time.*

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161 For each diving project, the diving contractor must evaluate how much of the project can be supervised safely by one person. Enough supervisors must be appointed to cover the entire diving project so that, for example, if a diving project is taking place over such an area or time-scale that it cannot be safely controlled by one supervisor, it should be divided into separate diving operations with further supervisors being appointed for every identified diving operation.

162 The supervisor must be appointed in writing by the diving contractor. When more than one supervisor is on duty at the same time the diving contractor should specify in the diving project plan the areas and duration of the project that are controlled by each supervisor. In particular, each supervisor must have immediate overriding control of all safety aspects for the diving operation for which they are appointed. The diving contractor may also need to provide a management structure in the diving project plan. When a supervisor hands over supervisory responsibilities to another supervisor, this should be recorded in the diving operation record.

163 During a continuous saturation diving project two supervisors should be on each shift and will therefore be able to act as relief for each other. The name of the supervisor in control should be recorded in the diving operation record with handovers for relief, or other purposes, also recorded.

Regulation	9
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(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
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Qualifications

164 Industry runs a recognised certification scheme for air diving supervisors, life-support technicians and bell diving supervisors. Any person appointed as a supervisor under this ACOP must possess the correct certificate for the planned diving operation.

165 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, a supervisor qualified to

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take charge of an air operation only is not qualified to take charge of a bell operation, whereas a bell diving supervisor is qualified to take charge of both types of operation. A list of current approved qualifications is available on the HSE diving website (see 'Further reading').

166 Supervisors do not have to have a certificate of medical fitness to dive or be qualified in first aid. However, the diving contractor must assess the first-aid capabilities of other personnel in the dive team and the role that the supervisor would play in an emergency.

Competence

167 The diving contractor must consider the competence of a person before appointing them as a supervisor. When considering competence, the diving contractor should consider questions such 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.

168 The diving contractor will be in a good position to decide on the person's competence if the person has worked for the company for some time. If the diving contractor does not know the person, it will be necessary to make appropriate enquiries concerning the person's knowledge and experience.

Knowledge and experience

169 The supervisor must have adequate practical and theoretical knowledge and experience of the diving techniques to be used in the diving operation for which they are appointed.

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 reasonable 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;*

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Supervisor's responsibility

170 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 ship's master or the offshore installation manager, can, however, tell the supervisor to terminate a dive for safety or operational reasons.

171 There will be times, for example, during diving operations from a vessel using dynamic positioning techniques that the supervisor must liaise closely with other personnel, such as the vessel master or the officer of the watch. In such circumstances, the supervisor should recognise that the vessel master has responsibility for the overall safety of the vessel and its occupants.

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172 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 ensure that:

- (a) as far as reasonably practicable, the diving operation that they are being asked to supervise complies with the requirements of this ACOP;
- (b) the proposed dive site and the water and weather conditions are suitable;
- (c) the risk assessment is still current for the circumstances prevailing on the day and during the dive;
- (d) they understand their own areas and levels of responsibility and who is responsible for any other relevant areas;
- (e) the personnel that they are to supervise are appropriately qualified and are competent to carry out the work required of them. They should also check, so far as reasonable, that these personnel are fit, and in possession of all necessary certificates, that is medical fitness to dive, diver's and first-aid certificate;
- (f) 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 assured by a pre-dive briefing session with all those involved and, if required, suitable training;
- (g) the plant that they propose to use for any particular operation is adequate, safe, properly certified and maintained and the plant is adequately inspected by themselves or another competent person before its use. Such inspections should be documented, for example on a prepared checklist, and recorded in the diving operation record;
- (h) 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 is given. This should be carried out as part of the risk assessment during the planning of the operation and should be documented. If the situation changes the risk assessment should be re-evaluated. Supervisors should check that documentation on the risk assessment of the plant is available and follow any guidance contained in the documentation, for example a manufacturer's instructions;
- (i) 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;
- (j) they 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 should be able to supervise adequately the raising and lowering of a diving bell if there is a direct audio link with the winch operator, even though the winch may be located where the supervisor cannot see it or have ready access to it;
- (k) proper records of the diving operation are maintained. This must include the particulars in Appendix 2;
- (l) they are able to see divers in the bell or the compression chamber during saturation operations;
- (m) they maintain the diving operation record throughout the diving operation for which they are responsible.

Regulation 11 Power of supervisor to give directions

Regulation	11
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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
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173 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.

174 The supervisor remains in overall control when a diver inside a deck chamber requires medical treatment, whether medical personnel are present or are communicating by long distance.

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

175 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').

176 Divers should have the original certificate in their possession at the site of the diving project.

177 An approved diving qualification is not required either by people who dive purely as part of their training to become qualified divers or by people providing emergency medical treatment in a chamber.

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

178 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. For some tasks, such as underwater inspection, certificates issued by diver training organisations or

ACOP 13

independent bodies, such as the certification scheme for weldment inspection personnel, will confirm a diver's competence.

179 Divers can gain knowledge of unfamiliar tasks or plant by, for example, looking at the diving project specifications, the plant to be operated, the area to be worked and any other relevant factors.

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

180 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

181 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

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

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

184 Certificates issued by the Manpower Services Commission and the Training Services Agency 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

185 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').

186 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.

187 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

188 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

189 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 that person's fitness to dive.

190 Divers who have suffered an incident of DCI should record details of the treatment that 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 that person's fitness to dive.

191 Before saturation exposure, the supervisor should ensure that a diver has had a medical check within the previous 24 hours. This will confirm, as far as reasonably practicable, the diver's fitness to enter saturation. The medical check will be carried out by a nurse, doctor or diver medic. The content of the medical check and the format of the written record may be decided by the diving contractor, and should be specified in the diving contractor's diving manual.

192 Before any dive not involving saturation, the supervisor should ask the divers to confirm that they are fit to dive and record this confirmation in the diving operation record.

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

193 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 offshore* (Second edition, 2014, L103).

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 offshore* (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 or installation 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 operation
- 16 Any other factors likely to affect the safety or health of any persons engaged in the 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 Name and address of the diving contractor
- 3 Date to which entry relates
- 4 Location of the diving operation, including the name of any vessel or installation from which diving is taking place
- 5 The maximum depth reached on each occasion
- 6 The time the diver left the surface, the bottom time, and the time the diver reached the surface on each occasion
- 7 Where the dive includes time spent in a compression chamber, details of any time spent outside the chamber at a different pressure
- 8 Breathing apparatus and breathing mixture used by the diver
- 9 Any decompression schedules followed by the diver on each occasion
- 10 Any work done by the diver on each occasion, and the plant (including any tools) used in that work
- 11 Any episode of barotrauma, discomfort or injury suffered by the diver, including details of any decompression illness and the treatment given
- 12 Any emergency or incident of special note which occurred during the diving operation
- 13 Any other factor relevant to the diver's health or safety
- 14 Name and signature of the authorised representative of the diving contractor (this will normally be the diving supervisor) who confirms the details recorded

Appendix 4 Relevant legislation

This legislation covers all industries and may be relevant to diving projects. The 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. Statutory Instruments can be viewed free of charge at 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 to 59 and 80 to 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 *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.
- 5 *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.
- 6 *Manual Handling Operations Regulations 1992* – cover the moving of objects by hand or bodily force.
- 7 *Personal Protective Equipment at Work Regulations 1992* – require employers to provide appropriate protective clothing and equipment for their employees.
- 8 *Provision and Use of Work Equipment Regulations 1998* – require that equipment provided for use at work including machinery is safe.
- 9 *The Offshore Installations and Pipelines (First-Aid) Regulations 1989* – cover requirements for first-aid offshore.
- 10 *Control of Noise at Work Regulations 2005* – require employers to take action to protect employees from hearing damage.

- 11 *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.

- 12 *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.

- 13 *Offshore Installations (Safety Case) Regulations 2005* – require the dutyholder of an offshore installation to submit at various stages in the life cycle of the installation a safety case for the management of health and safety on the installation.

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

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

- 16 *Health and Safety Information for Employees (Modifications and Repeals) Regulations 1995* – require employers to display a poster telling employees what they need to know about health and safety.

- 17 *Offshore Installations and Pipelines Works (Management and Administration) Regulations 1995* – require co-operation between everyone who has a contribution to make to ensuring health and safety on the offshore installation or in activities involving the installation.

- 18 *Offshore Installations (Prevention of Fire and Explosion, and Emergency Response) Regulations 1995* – provide for the protection of persons from fire and explosion and for securing effective emergency response.

- 19 *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.

- 20 *Health and Safety (First-Aid) Regulations 1981* – cover requirements for first aid training.

- 21 *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 pressurized gas.

- 22 *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
- 2 *The Health and Safety at Work etc Act 1974 (Application outside Great Britain) Order 2013* SI 2013/240 The Stationery Office 1974 www.legislation.gov.uk
- 3 *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
- 4 *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
- 5 *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
- 6 *Health and Safety at Work etc Act 1974 (c.37)* The Stationery Office 1974
www.legislation.gov.uk
- 7 *Commercial diving projects inland/inshore. Diving at Work Regulations 1997. Approved Code of Practice and guidance L104* (Second edition) HSE Books 2014
ISBN 978 0 7176 6593 8 www.hse.gov.uk/pubns/books/l104.htm
- 8 *The Management of Health and Safety at Work Regulations 1999* SI 1999/3242
The Stationery Office 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

Further reading

HSE's diving website: 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

First aid at work: Your questions answered Leaflet INDG214(rev2) HSE Books 2014
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

(Sections on explosion hazards from sub-sea housings containing rechargeable batteries, abrasive cutting discs, prevention of explosions during oxy-arc cutting operations and diving from dynamically positioned vessels)

Breathing gas management Diving Information Sheet DVIS3 HSE 1998

www.hse.gov.uk/pubns/dvis3.pdf

(Sections on use of SCUBA in commercial diving, checking contents of breathing mixtures and the marking of air and nitrox quads)

Compression chambers Diving Information Sheet DVIS4 HSE 1998

www.hse.gov.uk/pubns/dvis4.pdf

(Sections on safety procedures for diving chamber operations and diving safety interlocks)

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

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

The noise exposure of working divers Diving Information Sheet DVIS14 HSE 2011

www.hse.gov.uk/pubns/dvis14.pdf

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

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

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

Emergency procedures: provisions to be included for diving bell recovery

AODC 019 Rev 1 International Marine Contractors Association 1996

www.imca-int.com/diving-division

Length of divers' umbilicals from diving bells AODC 020 International Marine

Contractors Association 1984 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

Guidance on the use of inert gases AODC 038 International Marine Contractors

Association 1986 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

Prevention of explosions during battery charging in relation to diving systems
AODC 054 International Marine Contractors Association 1989
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

Aide memoire for recording and transmission of medical data to shore DMAC 01 Diving Medical Advisory Committee 1984 www.dmac-diving.org/guidance/

In-water diver monitoring DMAC 02 Diving Medical Advisory Committee 1979 www.dmac-diving.org/guidance/

Accidents with high pressure water jets DMAC 03 Diving Medical Advisory Committee 1981 www.dmac-diving.org/guidance/

Recommendations on minimum level of oxygen in helium supplied offshore
DMAC 05 Diving Medical Advisory Committee 1981
www.dmac-diving.org/guidance/

The effect of sonar transmission on commercial diving activities DMAC 06 Rev 1 Diving Medical Advisory Committee 2010 www.dmac-diving.org/guidance/

Recommendations for flying after diving DMAC 07 Rev 1 Diving Medical Advisory Committee 2001 www.dmac-diving.org/guidance/

Thermal stress in relation to diving DMAC 08 Diving Medical Advisory Committee 1981 www.dmac-diving.org/guidance/

Safe diving distance from seismic surveying operations DMAC 012 Rev 1 Diving Medical Advisory Committee 2011 www.dmac-diving.org/guidance/

The duration of saturation exposures and surface intervals following saturations
DMAC 021 Rev 2 Diving Medical Advisory Committee 2006 www.dmac-diving.org/guidance/

Proximity to a recompression chamber after surfacing DMAC 022 Diving Medical Advisory Committee 1992 www.dmac-diving.org/guidance/

The provision of emergency medical care for divers in saturation DMAC 028 Rev 1 Diving Medical Advisory Committee 2003 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

Diving operations from vessels operating in dynamically positioned mode
IMCA D 010 Rev 3 International Marine Contractors Association 2008
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

Diving in contaminated waters IMCA D 021 Rev 1 International Marine Contractors Association 2004 www.imca-int.com/diving-division

Limitations in the use of SCUBA offshore IMCA D 033 International Marine Contractors Association 2014 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

Marking and colour coding of gas cylinders, quads and banks for diving applications IMCA D 043 International Marine Contractors Association 2007 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

Surface supplied diving operations using Nitrox IMCA D 048 International Marine Contractors Association 2012 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

Minimum quantities of gas required offshore IMCA D 50 International Marine Contractors Association 2012 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

Guidelines for the design and operation of dynamically positioned vessels IMCA M 103 Rev 1 International Marine Contractors Association 2007 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

Guidelines for vessels with dynamic positioning systems MSC/Circ 645 International Maritime Organization 1994 www.imo.org/Publications

Dive teams and associated working practice

HSE guidance

Bell runs and bell lock-out times, and bell run times relating to habitats Diving Information Sheet DVIS7 HSE 1998 www.hse.gov.uk/pubns/dvis7.pdf

Non-HSE guidance

Offshore diving team manning levels AODC 048 International Marine Contractors Association 1988 www.imca-int.com/diving-division

Duration of bell lockouts DMAC 020 Rev 1 Diving Medical Advisory Committee 1997 www.dmac-diving.org/guidance/

Diving equipment systems inspection guidance note: Design for surface orientated (air) diving systems IMCA D 023 Rev 1 International Marine Contractors Association 2014 www.imca-int.com/diving-division

Diving equipment systems inspection guidance note: Design for saturation (bell) diving systems IMCA D 024 Rev 2 International Marine Contractors Association 2014 www.imca-int.com/diving-division

Diving plant

HSE guidance

Diving system winches Diving Information Sheet DVIS2 HSE 1998
www.hse.gov.uk/pubns/dvis2.pdf
(Section on diving bell hydraulic winch brake systems/air driven winches)

Breathing gas management Diving Information Sheet DVIS3 HSE 1998
www.hse.gov.uk/pubns/dvis3.pdf
(Section on checking contents of breathing mixtures/divers' gas supply systems/
on-line oxygen analysis of breathing mixture when diving at depths less than
50mtrs/oxygen safety in diving systems)

Compression chambers Diving Information Sheet DVIS4 HSE 1998
www.hse.gov.uk/pubns/dvis4.pdf

*Safe use of lifting equipment. Lifting Operations and Lifting Equipment Regulations
1998. Approved Code of Practice and guidance* L113 HSE Books 1998
ISBN 978 0 7176 1628 2 www.hse.gov.uk/pubns/books/l113.htm

Divers breathing air standard and the frequency of examination and tests Diving
Information Sheet DVIS9(rev1) HSE 2008 www.hse.gov.uk/pubns/dvis9.pdf

Cleaning of diving equipment Diving Information Sheet DVIS12 HSE 2010
www.hse.gov.uk/pubns/dvis12.pdf

Non-HSE guidance

Emergency isolation of gas circuits in the event of a ruptured bell umbilical
AODC 009 International Marine Contractors Association 1982
www.imca-int.com/diving-division

Emergency procedures: Provisions to be included for diving bell recovery
AODC 019 Rev 1 International Marine Contractors Association 1996
www.imca-int.com/diving-division

Emergency air bottles in diving baskets AODC 039 International Marine Contractors
Association 1986 www.imca-int.com/diving-division

Bell ballast release systems and buoyant ascent in offshore diving operations AODC
061 International Marine Contractors Association 1993
www.imca-int.com/diving-division

Medical equipment to be held at the site of an offshore diving operation
DMAC 015 Rev 3 Diving Medical Advisory Committee 2012
www.dmac-diving.org/guidance/

The provision of emergency medical care for divers in saturation DMAC 028 Rev 1
Diving Medical Advisory Committee 2003 www.dmac-diving.org/guidance/

Guidance for diving supervisors (Chapter 5: Communications)
IMCA D 022 Rev 1 International Marine Contractors Association 2014
www.imca-int.com/diving-division

*Diving equipment systems inspection guidance note: Design for surface orientated
(air) diving systems* IMCA D 023 Rev 1 International Marine Contractors Association
2014 www.imca-int.com/diving-division

Marking of hyperbaric rescue systems designed to float in water
IMCA D 027 International Marine Contractors Association 2002
www.imca-int.com/diving-division

Cleaning for oxygen service: Setting up facilities and procedures IMCA D 031
International Marine Contractors Association 2003
www.imca-int.com/diving-division

Diving equipment systems inspection guidance note: Design for surface supplied mixed gas diving systems IMCA D 037 International Marine Contractors Association 2006
www.imca-int.com/diving-division

Marking and colour coding of gas cylinders, quads and banks for diving applications IMCA D 043 International Marine Contractors Association 2007
www.imca-int.com/diving-division

Guidelines for Lifting Operations IMCA M 187 International Marine Contractors Association 2007
www.imca-int.com/diving-division

Guidelines for Lifting Operations IMCA SEL 019 International Marine Contractors Association 2007
www.imca-int.com/diving-division

Guidance on wire rope integrity management for vessels in the offshore industry
IMCA SEL 022 Rev 1 International Marine Contractors Association 2014
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

Non-HSE guidance

Periodic examination of bail-out bottles AODC 037 International Marine Contractors Association 1986
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

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

Supervisors

Non-HSE guidance

Offshore diving supervisor and life support technician certification schemes: Minimum requirements for certification IMCA D 013 Rev 4 International Marine Contractors Association 2013
www.imca-int.com/diving-division

Guidance for diving supervisors (Chapter 5: Communications) IMCA D 022 Rev 1 International Marine Contractors Association 2014
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/

Glossary of terms and abbreviations

Competence Competence means having a combination of training, 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 causes harm and an evaluation of precautions that can be taken to prevent harm.

Surface-orientated diving A diving technique in which the diver enters the water from the surface and then returns to the surface after completion of the dive, other than by means of a closed diving bell.

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

DCI Decompression illness.

DMAC Diving Medical Advisory Committee.

DP Dynamically positioned.

DVIS Diving Information Sheet.

HSE Health and Safety Executive.

IMCA International Marine Contractors Association.

IMO International Maritime Organisation.

MSC Manpower Services Commission.

ROV Remotely operated vehicle.

SCUBA Self-contained underwater breathing apparatus.

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. 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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