Scientific and archaeological diving projects

Diving at Work Regulations 1997

Approved Code of Practice

This is a free-to-download, web-friendly version of L107, (First edition, published 1988). This version has been adapted for online use from HSE's current printed version.

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This approved Code of Practice (ACOP) gives advice on meeting the requirements of the Diving at Work Regulations 1997 (referred to in this code as the Diving Regulations) for scientific and archaeological diving projects. It is aimed at all people whose work is involved with any scientific and archaeological diving projects within UK waters and waters adjacent to Great Britain.

However, in meeting these requirements, this does not mean that all aspects of the law are being complied with and the requirements of other legislation may also still need to be fulfilled.

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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.

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Notice of Approval

By virtue of section 16(1) of the Health and Safety at Work etc Act 1974, and with the consent of the Secretary of State for Environment, Transport and the Regions, the Health and Safety Commission has on 10 December 1997 approved the Code of Practice entitled *Scientific and archaeological diving projects*.

The Code of Practice is approved for the purposes of providing practical guidance with respect to the requirements of the Diving at Work Regulations 1997 (SI 1997 No 2776) and with respect to regulation 3 of the Management of Health and Safety at Work Regulations 1992 (SI 1992 No 2051). The Code of Practice comes into force on 1 April 1998.

Reference in this Code of Practice to another document does not imply approval by HSC of that document except to the extent necessary to give effect to this Code of Practice.

Signed

Rosemary Banner
Secretary to the Health and Safety Commission

19 January 1998

Preface

This publication contains the Approved Code of Practice (ACOP) and additional guidance for scientific and archaeological diving projects, together with the relevant regulations from the Diving at Work Regulations 1997. The full text of the Regulations (SI 1997 No 2776) is available from the Stationery Office.
For convenience, the full text of the Regulations is included in *italic* type, with the accompanying ACOP in **bold** type.

Introduction and scope

Explanation and intention of the Approved Code of Practice

1 This Approved Code of Practice (ACOP) (referred to as the Code) gives advice on meeting the requirements of the Diving at Work Regulations 1997 (referred to in this Code as the Diving Regulations) for scientific and archaeological diving projects. In particular, the Code gives advice on how to comply with those Regulations that are set out in general terms.

2 It should not be assumed that compliance with the Diving Regulations means that all aspects of the law are being complied with. The requirements of other legislation may also need to be fulfilled.

Health and safety legislation

3 The basis of health and safety law in Great Britain is the Health and Safety at Work etc Act 1974 (the HSW Act). The HSW Act 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. Some of these duties are qualified in the HSW Act by the principle of *so far as is reasonably practicable*. This requires all reasonable precautions to be taken to remove the risk of harm.

4 Regulations are law, approved by Parliament. These are usually made under the HSW Act following proposals from the Health and Safety Commission (HSC). Regulations set out specific action that must be taken.

Scope and areas covered by the Code

5 The Code applies to divers who are engaged in scientific and archaeological diving projects. In order for a diving project to fall within the Diving Regulations, there must be at least one diver participating in it who is ‘at work’. This means that at least one person must be diving as an employee or a self-employed person. (See paragraph 14 for definition of ‘at work’).

6 Archaeological diving projects include activities carried out in support of the investigation of sites of historic interest, the analysis of physical remains, the recovery from such sites of articles for preservation and further analysis, and educational instruction. It does not cover the recovery of items for salvage and then sale or personal use: this is covered by the Inshore Code.

7 Scientific diving projects include all diving projects undertaken in support of scientific research or educational instruction.

8 The Code also applies to all scientific and archaeological diving projects within the United Kingdom waters adjacent to Great Britain (generally 12 nautical miles from the low water line).

9 Diving for scientific or archaeological purposes which falls within the scope of the Offshore Code is covered by that Code and not by this; for example, diving projects where closed bell or saturation diving techniques are used.

Who wrote the Code and how it was agreed

10 A subcommittee of the Scientific Diving Supervisory Committee (SDSC) comprising: Martin Dean, Archaeological Diving Unit; Bobbie Forbes, Heriot Watt University; Phil Lonsdale, University Marine Biological Station Millport; Martin Sayer, Dunstaffnage Marine Laboratory; and Martin White, British Antarctic Survey, worked with the Health and Safety Executive (HSE) to produce the draft Code. A draft of this Code was published by HSC in July 1996 for public consultation.

Updating arrangements

11 There will be regular meetings between HSE, the SDSC and other parties in the industry to discuss the current suitability of the Code. When technology, industry standards or practices change, consideration will be given to amending the Code. All amendments will be the subject of formal public consultation.

The other diving Codes

12 There are four other Codes covering diving at work:

(a) Recreational diving projects (ISBN 0 7176 1496 4);
(b) Media diving projects (ISBN 0 7176 1497 2);
(c) Commercial diving projects offshore (ISBN 0 7176 1494 8); and
(d) Commercial diving projects inland/inshore (ISBN 0 7176 1495 6).

Each one of these Codes has been drafted by HSE with the help of industry associations for that sector and covers standards and practices that are relevant to its particular area of diving.

Sources of information

13 Advice notes from SDSC contain further information on scientific diving.

Regulation 2 (1)

Regulation 2 Definitions in the Regulations

(1) "diver" means a person at work who dives;

Guidance 2(1)

14 'At work' means as an employee or as a self-employed person. The phrase covers divers who dive as part of their duties as an employee and divers who are in business on their own account during the time that they devote themselves to work as a self-employed diver. Diving does not have to be the main work activity of the employee or the self-employed person. The Diving Regulations apply to any diving project where at least one diver is at work.

15 There is nothing in the Diving Regulations that prevents scientific and archaeological dive teams being made up of a mix of both people who are at work and people who are not. All people who dive must be competent to dive and if anyone in the team who is not at work is allocated duties under the Diving Regulations he or she must be competent to perform these. The Diving Regulations require that before the start of a diving project a risk assessment is performed and a diving project plan is produced that addresses any identified risks. Managing a mixed team is a type of risk that needs to be planned for.

Regulation 2(2)

(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(2)

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

Regulation 2(1)

(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(1)

17 '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.

18 A number of diving projects could take place on one site at the same time. Each of these projects could be separate from the others, and each could have a separate diving contractor in charge.

19 The diving project will finish when the diving contractor has ensured that every diver has been safely recompressed.

Regulation 2(1)

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

20 'Diving operations' can be made up of either a number of dives or, sometimes,

Guidance

2(1)

a single dive. A diving operation should be that portion of a diving project identified in the diving project plan which one supervisor can safely supervise. One supervisor must be appointed for each diving operation.

21 The diving project plan should identify how the diving project is broken down into diving operations and how many supervisors will be needed. The diving contractor should determine this after studying the risk assessment. Factors such as the task, site conditions and the diving technique will contribute to making the decision. It is also a good idea to involve the supervisor or supervisors in the process. If a supervisor does not agree with the size or complexity of the portion of the diving project allocated to him or her to supervise, he or she should raise the matter with the diving contractor. Supervisors should not participate in a diving operation which they consider in their opinion to be unsafe because insufficient supervisors have been appointed or which they are not competent to supervise.

Regulation

3(1)(a)

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(1)(a)

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

Regulation

5(1)

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(1)

23 The term 'person' used to identify the diving contractor under this regulation means a person with legal identity such as an individual or a company and includes a body of people corporate or incorporate.

Regulation

4

Regulation 4 Clients and others

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.

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24 Actions or omissions of other people can affect the safety of the dive team even though these people are not members of the team. These people include:

(a) *The client*, who has the responsibility of selecting a diving contractor to perform the project. This responsibility means that the client should make his or her selection on grounds of how the diving

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contractor proposes to comply with the Diving Regulations and the diving contractor's plans for a safe system of work, as well as the many other factors that the client should consider when making his or her selection. While the duties of the client under this regulation do not extend to checking the quality of the diving contractor's risk assessment or diving project plan, a client, before engaging a diving contractor, should establish basic details of how the diving contractor will go about this task. It is essential that adequate resources are allocated to the diving contractor to enable him or her to perform the diving contractor's duties under the Diving Regulations.

(b) ***Site owners and charitable trusts*** **should pass on relevant information to the diving contractor they engage. They should consider whether any underwater or above water hazards could be a risk to the safety of the divers. They should also ensure that other activities in the vicinity do not affect the safety of the diving project.**

(c) ***Vessel operators*** **should ensure that any equipment under their control does not adversely affect the safety of the diving project. They should keep the supervisor informed of any changes in circumstances which may affect the safety of the diving project, and co-operate with the diving contractor to enable his or her obligations under the Regulations to be fulfilled.**

25 Each of these people should take reasonable steps to ensure that any diving contractor selected is capable of complying with the Regulations.

26 The duty under this regulation also extends to diving contractors, supervisors, divers and to people indirectly involved in the diving project, such as crane operators, lorry drivers, and maintenance personnel. These people should ensure that their tasks and the way they undertake them does not affect the safety of the dive team.

4

Regulation

Regulation 5 Diving contractors

(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.

5

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27 Under the Regulations, there must be a diving contractor for every diving project. The diving contractor will be the employer of the divers or a self-employed diver.

28 The diving contractor must either be the employer of the divers taking part in the diving project, or someone who dives in the diving project as a self-employed diver. Such an employer could be, for example, the Vice Chancellor of a University or the Director of a Research Council. The employer could carry out his or her legal duty as a diving contractor

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by instructing a suitable employee* with expertise in diving matters to discharge *some of* † the specialist duties of the diving contractor on his or her behalf. The employee instructed to carry out these duties must be competent to perform them.

29 'Competence' means having a combination of training, knowledge and experience which enables a person to do the job required in a safe manner. Evidence of past experience in organising a diving project in a safe and effective manner and appropriate qualifications would be ways of demonstrating competence. The employee selected will also need the authority and resources to effectively discharge these duties. The duties will remain with the employer who must be satisfied that the employee selected will be able to perform the duties on his or her behalf without risk to the dive team or to that employee.

30 Where there is more than one employer of divers or more than one self-employed diver taking part in the diving project, it must be established and recorded in writing who will be the diving contractor for that project.

*** This person need not be an employee - it could be somebody brought in for the purpose.**

† The duty to appoint a supervisor at regulation 6(2)(b) is personal to the diving contractor.

5

Regulation

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.

(2) The diving contractor shall -
(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.

(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;

6(1),(2)(b),(c),(3)(d),(e)

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31 The diving contractor has overall responsibility for the safety of the diving project. This includes ensuring that:

(a) a suitable risk assessment and diving project plan have been prepared which identify the number of supervisors, divers and equipment needed (see section 'Diving project plan and risk assessment');
(b) the size and abilities of the dive team are sufficient to enable the diving project to be carried out safely (see section 'Dive teams and associated working practice');
(c) the place from which the diving is to be carried out is suitable and safe;

6(1),(2)(b),(c),(3)(d),(e)

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6(1),(2)(b),(c),(3)(d),(e)

(d) supervisors are appointed in writing (this must be done by the diving contractor) for the diving operation which they are to supervise and are supplied with copies of their formal appointment and the part of the diving project plan relevant to their operation;
(e) a sufficient number of suitably qualified personnel are used and are competent to undertake the tasks assigned to them. Members of the team who are not at work and who are allocated duties under the Diving Regulations must be competent to perform them (see sections 'Supervisors' and 'Divers');
(f) the team is medically fit to dive (see section 'Medical checks');
(g) the supervisor and dive team are fully briefed on the project and aware of the contents of the diving project plan;
(h) suitable plant and equipment are provided and are properly maintained (see sections 'Diving plant' and 'Maintenance of diving plant');
(i) adequate arrangements exist for emergencies, including first-aid and medical treatment (see section 'Dive teams and associated working practice');
(j) an up-to-date record is kept for each diving operation;
(k) all other relevant regulations are complied with.

Regulation

7(1),(2)

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(1),(2)

32 Any person who wishes to become a diving contractor must provide HSE with information regarding his or her identity and where he or she can be contacted. The diving contractor is also required to inform HSE of any subsequent changes to these details. Full details required are set out in Schedule 1 to the Diving Regulations. HSE will acknowledge receipt of such information.

Regulation

6(2)(a)

Regulation 6 Diving project plan and risk assessment

(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;.

Regulation

8(1),(3)

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.

Regulation 8(1),(3)

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

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33 The diving contractor is responsible for ensuring that before the start of the diving project a suitable risk assessment and diving project plan have been prepared. The diving contractor may take on the task of preparing the dive plan or ask the supervisor to prepare one. In any event the diving contractor must check that a diving project plan has been prepared and completed in advance for each diving project and is suitable and sufficient for each diving project under his or her responsibility.

34 In addition to any generic risk assessments in the diving project plan, all diving projects should have a site- and date-specific risk assessment. These risk assessments should be kept with the diving project plan together with any additional safety procedures needed. Both the risk assessment and the diving project plan must be documented.

35 The diving project plan should specifically identify how the diving project is broken down into individual operations which can be safely supervised by one person. When making this decision the diving contractor should take into account the size and nature of the diving project.

36 The diving contractor should check that the divers are competent to dive to the depth required by the diving project plan.

Risk assessment

37 The risk assessment should identify any risks associated with a diving project as well as the measures to control those risks. These include:

(a) sea conditions, underwater visibility, pollution, depth, temperature;
(b) access to and from the shore/boat/platform;
(c) breathing gas mixture and the equipment needed;
(d) experience and number of personnel (including people who are not at work but are part of the dive team);
(e) emergency procedures, including the location and proximity to emergency facilities, such as compression chambers and medical expertise;
(f) the method chosen for the dive, ie surface supply or SCUBA, stating the safety reasons for the choice.

38 This is not a complete list of all hazards and measures needed to control risks. An appraisal of the hazards at a specific dive site will identify the full extent of the safeguards needed to protect the safety of the dive team.

39 As a matter of safe working practice, the supervisor should keep the site-specific risk assessment under review to ensure that it is adequate and does not need to be revised.

40 As well as the particular diving project plan for the individual operations there will be generic diving rules, such as the SDSC advice notes and any in-house rules. The supervisor should have copies of both the generic diving rules and the diving project plan for his or her operation. All members of the team should have access to copies of these and should also become familiar with them before the dive.

6(2)(a),8(1),(3)

ACOP

41 A risk assessment made under these Regulations will cover in part the obligation to make an assessment under the Management of Health and Safety at Work Regulations 1992 (MHSWR). There will be no need to repeat those aspects of the assessment, so long as they remain valid, in any other assessment that the diving contractor carries out. However, the diving contractor will need to ensure that all significant risks not covered by the diving project assessment (including risks to members of the public arising from the diving project/diving activities) are covered by the risk assessment carried out under the MHSWR (or in any assessment required to be carried out under other specific regulations).

Decompression procedures

42 Decompression procedures (including the use of a decompression computer) should be appropriate for the type of diving technique undertaken and their use included in the diving project plan. For surface-orientated diving, decompression procedures should be consulted to determine whether the dive requires 'in-water' decompression. All decompression procedures should be designed to take into account the risks of a particular type of dive and should include the various rules and procedures needed in order to reduce the risk of decompression illness.

6(2)(a),8(1),(3)

Regulation

Regulation 6 Dive teams and associated working practice

(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;

6(3)(a)

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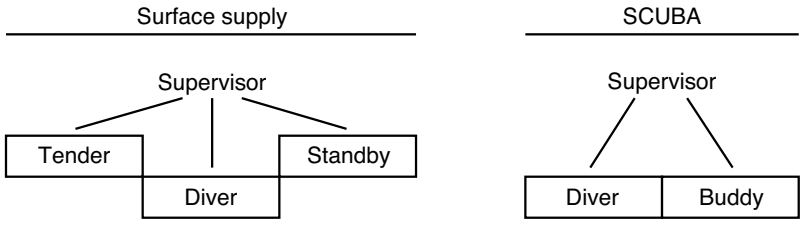
43 The diving contractor should identify the minimum size of team for safe operations based on the requirements of the risk assessment and diving project plan. The risk assessment should take into account the number of divers needed in order to carry out the project safely and deal with how foreseeable emergencies will be managed. This information should be included in the diving project plan.

44 The following guide indicates the minimum team size for benign conditions: clear water, no excessive tide or current, no trapping hazard, easy entry and exit from the water, and where the task to be performed is not arduous.



45 Only rarely will it be acceptable to use the minimum team size. The acceptability of this number should be established from the risk assessment and included in the diving project plan.

6(3)(a)

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46 The supervisor should be familiar with the diving project plan and the emergency arrangements for obtaining immediate assistance in the event of an incident; for example, it may be necessary to have another pair of hands to help rescue someone from the water or to go for help. Any additional persons must be included as members of the dive team under direct control of the supervisor.

47 All the people who form part of the dive team must be competent to discharge their duties. HSE approves certain qualifications for diving under this Code which indicate that a minimum level of competence has been assessed. Qualifications alone do not always demonstrate fitness to undertake a task. The diving contractor has a duty to engage competent people, which may entail ensuring that the dive team's competence is verified or demonstrated. This is particularly important when allocating duties for mixed team diving. In such cases the diving contractor should ensure that everyone is competent to undertake their tasks safely and without risk to themselves and other members of the team.

6(3)(a)

Regulation

Regulation 10

(2) The supervisor shall not dive during the diving operation which he is supervising unless -

(a) (ii) the dive is for archaeological, educational or scientific purposes, takes place in a tank or pool artificially constructed for the purpose of swimming or diving and the persons taking part in the dive use only self-contained underwater breathing apparatus; and

(b) the supervisor can so dive without risk to the health and safety of those taking part in that operation and of other persons who may be affected thereby; and

(c) the diving project plan which relates to that operation specifically provides for the supervisor to so dive.

10(2)(a)(ii),(b),(c)

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Pools and tanks

48 Where a dive takes place in a swimming pool or tank and SCUBA is used, the supervisor may dive during the course of the diving operation which he or she is supervising. The diving project plan must make specific provision for this and identify the measures needed to ensure that the operation takes place without risk to those taking part in it or others who might be affected by the operation.

49 Providing the dive takes place in a clear pool or tank with no interference from other activities, the minimum team size when using SCUBA can be three: a dedicated person on the surface and two qualified divers in the water who must each act as standby diver to the other. One of the divers must be the appointed supervisor. The person on the surface does not have to be a qualified diver but he or she should be familiar with the diving project plan and arrangements for obtaining immediate assistance in an emergency. He or she should not leave the dive site while the operation is taking place.

50 In certain very benign situations, the dive team can be the supervisor on the surface, a diver on a lifeline and a third person on the surface to assist with the emergency recovery of the diver, if needed. However, the risk assessment must identify the situations where this is safe and record the appropriate measures which should be taken to ensure that the risks

10(2)(a)(ii),(b),(c)

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are controlled. It should cover how the diver, if injured or unconscious, can be lifted from the water before help arrives and how help can be summoned without delaying assistance to the diver.

First-aid training and competencies

51 The diving contractor is responsible for ensuring that enough people in the diving project are trained to the required standard of first aid. The risk assessment will identify the first-aid equipment required on site and the number of qualified personnel needed to use it.

52 The risk assessment should take into account the type of diving taking place, the size of the team and the distance of the dive site from the emergency services. It is sensible to have more than one person in the team qualified in first aid in case that person becomes injured. Those who are qualified should not hold other important duties which could conflict with the need to administer first aid in an emergency.

53 There are situations where some members of the dive team should have additional training in first aid. The need for additional training may arise where remoteness from local emergency medical services means there is a need to maintain life until the emergency medical services are able to assume responsibility; and where the diver requiring first aid is inside a hyperbaric compression chamber and medical assistance cannot be provided by normal emergency medical services. The Health and Safety (First-Aid) Regulations 1981 Approved Code of Practice sets out additional advice for those areas where special additional training may be necessary to cover less common risks.

54 At least one member of the dive team should be qualified in resuscitation and oxygen administration.

55 The diving project plan should record who in the diving team has responsibility for first aid and what type of first-aid equipment is available for the diving project.

10(2)(a)(ii),(b),(c)

Regulation

6(3)(b)

Regulation 6 Diving plant

(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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56 The diving project plan should identify the type and amount of equipment required depending on the circumstances of the diving project.

57 Each diver should be supplied with breathing gas which is to a recognised international, European or national standard, and which is adequate in volume and rate of supply for the specific diving operation. An alternative breathing gas source or secondary life support system should be provided for emergency use.

58 A two-way means of communication between the supervisor and the divers should be provided. Voice communications with tape recording facilities should be available for all dives and only dispensed with if the findings of the risk assessment state that it would be safe to dive without it. For example, the risk assessment should take into account the circumstances of the dive and identify whether there is a need for direct voice communications. A means of communication should also be considered for raising assistance and speaking to the compression chamber operator.

59 Suitable thermal and safety protection equipment should be provided for all personnel involved in the diving project.

Dealing with emergencies

60 For each diving project the risk assessment should include a suitable casualty evacuation plan. This should include the arrangements for the emergency recovery of a casualty from the water and his or her transportation to a hyperbaric chamber or specialist treatment centre. The details of the emergency arrangements should be recorded in the diving project plan. The initial stages of these arrangements should be tested periodically in order to ensure that they are effective.

61 There should also be a means of summoning further emergency assistance that does not involve the supervisor or other essential personnel leaving the immediate dive site. This should be planned for when deciding the team size.

62 An appropriate first-aid kit including an emergency oxygen administration set should be immediately available on the dive site.

63 When diving in polluted waters suitable decontamination/ disinfection procedures should be in place before and after the diving project.

Availability of compression chambers

6(3)(b)

64 The diving contractor has a responsibility to ensure the provision of

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facilities so that a diver can be recompressed in an emergency, should this be necessary. In all circumstances treatment should be given as soon as possible. The provision of a compression chamber should be in accordance with the decompression procedures selected as part of the diving project plan.

65 In addition, the following advice should be considered:

(a) for dives with no planned in-water decompression and that are less than 10 metres the diving contractor should identify the nearest suitable operational two-person, two-compartment chamber. Under no circumstances should this be more than 6 hours travelling distance from the dive site;

(b) for dives over 10 and up to 50 metres with either:

- **no planned in-water decompression; or**
- **with planned in-water decompression of up to 20 minutes,**

a suitable two-person, two-compartment chamber should be within 2 hours travelling distance of the dive site;

(c) for dives with planned in-water decompression stops greater than 20 minutes a suitable, operational, two-person, two-compartment chamber should be provided for immediate use at the site of the diving project. The diver should be able to leave the water quickly and easily and be pressurised within the chamber to the appropriate recompression pressure as defined by the time in the decompression schedule being used. The controls of a surface compression chamber should only be operated by persons competent to do so. Such competence will be achieved by a combination of training and experience. The degree of supervision provided should reflect the experience of the operator.

66 The diving project plan should demonstrate that in an emergency, where the compression chamber is not located on the site, a diver will be able to be transported and recompressed to ensure, so far as is reasonably practicable, his or her safety.

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

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

69 If the use of any type of hyperbaric transportation chamber is planned for emergencies, the supervisor should be asked before the start of the diving operation to ensure that transfer is possible between the transportation chamber and the main chamber. In assessing both hyperbaric and normobaric transfers to compression facilities, the supervisor should ensure that there is a sufficient supply of oxygen available during the planned duration of the transfer.

6(3)(b)

Regulation

6(3)(c)

Regulation 6 Maintenance of diving plant

(3) The diving contractor shall -

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

ACOP

70 Diving plant and equipment is used under extreme conditions, including frequent immersion in salt water. It therefore requires regular inspection, maintenance and testing to ensure that it is fit for use and not damaged or suffering from deterioration.

71 In order to ensure that the equipment is maintained, the diving contractor should have a written scheme of equipment maintenance and inspection. All plant and equipment should be checked by a competent person immediately before use and this check entered in the diving operation record.

72 Where they can affect the personal safety of the dive team, all items of plant and equipment owned by, or hired by the diving contractor should have a maintenance record showing that it has been checked by a competent person within a period not exceeding six months before use (or more frequently if required by manufacturers' recommendations or international, European or national standards). This record should identify the item of equipment, show the date of the check, the signature of the competent person, any limitations as to use, and any repairs or modifications carried out. Care should be taken to include all items especially those that can be interchanged at subsystem level, such as breathing apparatus pressure reducers and demand valves.

73 The diving contractor should ask divers using their own diving equipment to confirm that it has been serviced in accordance with the appropriate equipment supplier's service schedule and that all the cylinders have been tested for fitness-for-use in line with statutory requirements under other regulations. Prior to the dive, this should be confirmed to the supervisor and recorded in the diving operation record for his or her operation.

74 The diving contractor should also ensure that before the start of the diving operation, divers will be asked to carry out a pre-dive visual inspection and check of their equipment to ensure that it is in a serviceable condition and working correctly.

6(3)(c)

75 Where breathing and similar equipment is likely to be shared, appropriate disinfection procedures should be used.

Regulation 9 Supervisors

Regulation 9(1)

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

ACOP 9(1)

Supervisor's appointment

76 A supervisor must be appointed in writing by the diving contractor. If a diving project is complex or takes place over such an area or time-scale that its operation cannot be safely supervised by one supervisor, then the project should be divided up and further supervisors should be appointed for separate operations. Enough supervisors must be appointed to cover the entire diving project.

77 Written appointments should clearly define the times and areas of control, and the name of the person appointed and supervising at the time should be entered in the diving operation record. The supervisor should have immediate overriding control of all safety aspects of the diving operation for which he or she is appointed.

78 During the period of appointment the supervisor should not leave the dive site or dive without formally handing over to another supervisor. The hand-over should be entered in the diving operation record.

Regulation 9(2)

(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(2)

Supervisor's competency

79 While the supervisor need not be medically fit to dive (unless he or she is diving), the supervisor should, where appropriate, be suitably qualified. This means that the supervisor is either adequately trained or experienced in the operational and safety techniques which are to be used for that particular operation.

Regulation 10

Regulation 10(1)(a)(i),(b),(c)

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

(a) ensure that it is carried out, so far as is reasonably practicable -

(i) without risk to the health and safety of all those taking part in that operation and of other persons who may be affected thereby;

(b) before the commencement of the operation, ensure that each person taking part is aware of the contents of the diving project plan which relate to that operation; and

(c) enter in the diving operation record the particulars required by regulation 6(4) during the course of the operation.

ACOP

10(1)(a)(i),(b),(c)

Supervisor's responsibility

80 The supervisor has legal responsibility for the safety of the diving operation he or she is supervising and should be on site, in direct control of the diving operation taking place. This includes confirming that:

(a) all relevant authorities are aware that a diving operation is in progress, and all the necessary permits and permissions have been obtained;
(b) the competencies, abilities and fitness of all the personnel involved in the diving operation have been assessed and the people making up the dive team are capable of carrying out safely the tasks required of them. Everyone in the dive team is responsible for making a realistic assessment of their own fitness and capabilities;
(c) if a task requires the use of any specialised equipment, all the personnel involved are adequately trained and aware of any particular hazards and risks associated with the equipment and if appropriate hold a certificate of training or competency in the use of specialist equipment;
(d) the diving project plan and arrangements for dealing with foreseeable emergencies are clearly understood by all those engaged in the diving operation. This would normally be ensured by a pre-dive briefing session with all those involved;
(e) the diving operation record is accurate and kept up to date on a daily basis throughout the dive.

81 The supervisor should carry out or check that a site-specific risk assessment has been carried out before and on the day or days of the dive. The supervisor should also check that the assessment is still accurate since, for example, environmental conditions may change from day to day.

82 The supervisor's responsibilities to the divers in a diving operation will continue until all necessary decompression has finished, unless the treatment takes place in a hospital or other place, or until the responsibility has been handed over to another appointed supervisor.

Regulation

11

Regulation 11

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

ACOP

11

Directions

83 As the person in charge, the supervisor may give reasonable instructions to any person taking part in the diving operation. This includes people who are not at work diving in a mixed dive team.

84 The supervisor should decide upon a common system of signals to be used between all personnel involved in the operation, and ensure that everyone is familiar with this system. This should be done before the start of the diving operation for which he or she is responsible, and recorded in the diving project plan.

85 Although the supervisor does not need to have direct personal control over all items of plant, machinery, and control systems involved in the diving operation, he or she should have direct communication links with the operators of such equipment.

Regulation

13(1)(a)

Regulation 13 Divers

(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(1)(a)

Competency

86 Divers (people who dive as employees or who are self-employed) without an approved HSE approved qualification (see paragraphs 90-91) will not be considered competent to dive as a nominated member of the dive team.

87 If the dive team includes people who are not at work, they must be competent to perform any task allocated to them.

88 The risk assessment should address the level of competence required for the particular diving project.

89 All members of the dive team should be fully trained and familiar with any specialised items of equipment that they will be using, and if appropriate, hold a certificate of training or competency in the specialist equipment.

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;*

ACOP

12(1)(a)

Qualifications

90 HSE issues an annual list of approved diving qualifications suitable for diving under this Code. The list can be obtained from HSE. Divers must hold one of these qualifications before they can be engaged to dive in a diving project.

91 When any equipment other than self-contained, open circuit, air diving equipment is used, the diver, standby diver and supervisor should have suitable training in its use. Mixed gas diving requires a specific qualification. Rebreathers also require specific training and this training should be endorsed by the manufacturer.

Regulation

13(2)

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; and*
(b) *where they would not conflict with those directions, any instructions applicable to him in the diving project plan.*

ACOP

13(2)

92 All people in the dive team, including those not at work, have a responsibility to co-operate with the supervisor and to follow any reasonable directions and instructions that the supervisor gives.

93 All the dive team should thoroughly familiarise themselves with the equipment used in the diving operation. This should be done before the operation commences. This routine safety check should also be carried out by all the dive team, including those not at work.

Regulation

12(3)(a)

Regulation 12

(3) Every diver engaged in a diving project shall -

(a) maintain a daily record of his diving;

ACOP
13(3)(a)

94 Diving logs should include as a minimum the particulars recommended by the SDSC advice notes. They should be accurate and reflect the information contained in the diving operation record.

Regulation

17(1)

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[(a)] ("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.

(a) SI 1981/399 as amended by SI 1990/996 and SI 1992/608

ACOP
17(1)

95 All HSE parts certificates issued under the Diving Operations at Work Regulations 1981 remain legally valid and do not have to be exchanged for the new certificates.

Regulation

13(1)(b)

Regulation 13 Medical checks

(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(1)(b)

Fitness

96 Every person diving has a responsibility not to dive if by doing so they might present a risk to themselves or others. They must inform the supervisor immediately if there is any medical condition which prevents them from diving safely or rendering assistance to another member of the diving team. Before every dive they must ensure that they know of nothing which makes them unfit to dive including:

(a) any known medical condition;
(b) any effects of drugs or alcohol;
(c) any effect of medication whether prescribed or proprietary;
(d) any feelings of tiredness or a feeling of being unwell.

97 If the dive team includes people who are not at work, they should have evidence that they are fit to dive. This includes an appropriate medical recommended by their recreational diving organisation and undertaken by a doctor.

Regulation

12(1)(b)

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(1)(b)

Medicals

98 All divers at work must have a valid certificate of medical fitness to dive issued by a medical examiner of divers. The certificate of medical fitness to dive is valid for up to 12 months and must be renewed annually if a diver wishes to continue diving at work.

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

Regulation

15(1)

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(1)

100 The medical examination and assessment looks at the diver's overall fitness to dive. This includes 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

15(6)

(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(6)

101 HSE approves doctors to carry out diving medical examinations. A list is available from HSE. Doctors are selected for approval based on their training in underwater medicine and their knowledge of diving. This approval is limited in duration, usually for one or two years.

Annex 1 Glossary of terms and abbreviations

Buddy

A buddy is the term given to a dive partner who in an emergency situation would be available to provide assistance to the other diver.

Competence

Competence means having a combination of training, knowledge and experience which enables a person to do the job required in a safe 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.

Risk

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

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.

HSC

Health and Safety Commission

HSE

Health and Safety Executive

SCUBA

Self-contained underwater breathing apparatus

SDSC

Scientific Diving Supervisory Committee

Annex 2 Major legislation

This legislation covers all industries and may be relevant to diving projects. This list is not exhaustive.

1 *The Health and Safety at Work etc Act 1974.*

2 *Management of Health and Safety at Work Regulations 1992* require employers to carry out risk assessments, make arrangements to implement necessary measures, appoint competent people and arrange for appropriate information and training.

3 *Workplace (Health, Safety and Welfare) Regulations 1992* cover a wide range of issues such as ventilation, heating, lighting, seating and welfare facilities.

4 *Health and Safety (Display Screen Equipment) Regulations 1992* set out requirements for work with visual display units.

5 *Personal Protective Equipment Regulations 1992* require employers to provide appropriate protective clothing and equipment for their employees.

6 *Provision and Use of Work Equipment Regulations 1992* require that equipment provided for use at work including machinery is safe.

7 *Manual Handling Operations Regulations 1992* cover the moving of objects by hand or bodily force.

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

9 *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.

10 *Employers' Liability (Compulsory Insurance) Regulations 1969* require employers to take out insurance to cover their liability for accidents and ill health sustained by their employees.

11 *Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995* require employers to notify certain occupational injuries, diseases and dangerous events.

12 *Noise at Work Regulations 1989* require employers to take action to protect employees from hearing damage. The Regulations now apply offshore.

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

14 *Control of Substances Hazardous to Health Regulations 1994* require employers to assess the risks from hazardous substances and take appropriate precautions.

15 *Chemicals (Hazard Information and Packaging for Supply) Regulations 1994* require suppliers to classify, label and package dangerous chemicals and provide safety data sheets for them.

16 *Construction (Design and Management) Regulations 1994* cover safe systems of work on construction sites.

17 *The 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.

18 *Carriage of Dangerous Goods (Classification, Packaging and Labelling) of Transportable Pressure Receptacles Regulations 1996* regulate the transport and labelling of pressurised gas cylinders.

19 *Approved Requirements for Transportable Pressure Receptacles* (to be implemented in 1998).

Further information

For information about health and safety ring HSE's Infoline Tel: 0845 345 0055 Fax: 0845 408 9566 Textphone: 0845 408 9577 e-mail: hse.infoline@natbrit.com or write to HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG.

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