



General hazards

Diving Information Sheet No 1

Introduction

1 This diving information sheet is part of a series of information sheets providing guidance on diving at work. It replaces the following diving safety memoranda: DSM 6/1983, DSM 4/1988, DSM 4/1991 and DSM 3/1994. The remaining DSMs have either been replaced by other diving information sheets, or were cancelled when the Diving at Work Regulations come into force on 1 April 1998.

2 There are four sections, containing guidance on the following hazards:

- (a) diving from dynamically positioned vessels;
- (b) explosion hazards from subsea housings containing rechargeable batteries;
- (c) abrasive cutting discs;
- (d) preventing explosions during oxy-arc cutting operations.

Diving from dynamically positioned vessels

3 Diving from dynamically positioned (DP) vessels is particularly hazardous because of the danger arising from divers, or their umbilicals, becoming fouled in propellers or thrusters.

4 Every diving contractor, so far as is reasonably practicable, should ensure that each diving operation is carried out from a suitable, safe place.

5 Care must be taken in the selection of vessels and personnel used for these operations. It is important to make sure that personnel have the necessary skills, and that the vessels are operated in a way which meets the statutory requirements.

6 The diving rules must incorporate proper procedures which emphasise the importance of close and efficient supervision, good diver tending, and comprehensive communication coverage, at all times.

7 A DP vessel may not always provide the necessary suitable, safe place for diving operations. Other means must be considered.

8 If a safe diving position cannot be maintained, then diving should not take place.

9 Further guidance on this subject can be found in the International Marine Contractors' Association (IMCA) Diving Division Guidance Note IMCA D 010.

Explosion hazards from subsea housings containing rechargeable batteries

10 Exploding battery-charging gases can be very dangerous.

11 It is strongly recommended that the following precautions are taken by contractors, who hold sealed pressure housings used to encapsulate rechargeable batteries which vent gases on recharging:

- (a) The housings should be opened, and the equipment withdrawn, before batteries are recharged.
- (b) The charging socket should be located internally so that access can only be made when the equipment is removed from the housing.
- (c) All electronic equipment with integral battery supplies, which are encapsulated in pressure housings, should not be stored for long periods in a 'sealed condition'. It is important to note that stored batteries should be fully charged prior to storage and recycled according to the manufacturer's recommendations.
- (d) All units should be treated with extreme caution and opened in a well-ventilated area where there is no danger of ignition.

Abrasive cutting discs

12 The adhesives used in the manufacture of these discs tend to be adversely affected by moisture. Obviously this situation is aggravated when a disc has been fully immersed in water.

13 The dangers of using a disc with a degraded adhesive are obvious, and it is strongly recommended that discs which have been taken underwater are discarded.

14 To prevent problems with new discs, it is recommended that they are stored horizontally in a warm dry atmosphere.

Preventing explosions during oxy-arc cutting operations

15 Over the years there have been a few serious explosive incidents, when the oxy-arc cutting technique has been used to cut into material and voids which have no known explosive properties.

16 A research project was carried out on the oxy-arc cutting technique at depth, using experimental data and computer modelling. It showed that there is enough hydrogen produced, during the time between making the rod 'hot' and striking the arc, to cause an explosion. During the research an interval of four seconds was shown to be long enough to produce sufficient hydrogen, at a working depth of 150 m, to cause a serious explosion, even in a half-used rod.

17 The probability of various items, such as depth, time interval, rod length, oxygen injection and striking the arc, combining to form an explosive situation is low. However, it is believed that the best way to avoid a dangerous situation during oxy-arc cutting operations, is by following the procedure given in paragraph 18.

Recommendation

18 The diver should:

- (a) be in a position to start cutting;
- (b) flush the torch with oxygen and maintain the flow;
- (c) energise the cutting torch;
- (d) strike an arc;
- (e) proceed with the normal cutting procedure.

Note: If difficulty is experienced in striking the arc or maintaining the cut, the torch should be flushed again with oxygen, as a matter of routine.

Further reading

1 *Commercial diving projects offshore. The Diving at Work Regulations 1997. Approved Code of Practice* L103 HSE Books 1998 ISBN 0 7176 1494 8

2 *Commercial diving projects inland/inshore. The Diving at Work Regulations 1997. Approved Code of Practice* L104 HSE Books 1998 ISBN 0 7176 1495 6

3 *Recreational diving projects. The Diving at Work Regulations 1997. Approved Code of Practice* L105 HSE Books 1998 ISBN 0 7176 1496 4

4 *Media diving projects. The Diving at Work Regulations 1997. Approved Code of Practice* L106 HSE Books 1998 ISBN 0 7176 1497 2

5 *Scientific and archaeological diving projects. The Diving at Work Regulations 1997. Approved Code of Practice* L107 HSE Books 1998 ISBN 0 7176 1498 0

6 *The Diving at Work Regulations 1997* SI 1997/2776 The Stationery Office 1997 ISBN 0 11 065170 7

IMCA guidance notes are available from IMCA, Carlyle House, 235 Vauxhall Bridge Road, London SW1V 1EJ

Further information on diving is available at www.hse.gov.uk/diving

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This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.
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