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TRAINING AND CERTIFICATION OF DIVERS Part 4—BELL DIVING



STANDARDS ASSOCIATION OF AUSTRALIA
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This Australian standard was prepared by Committee SF/17, Work in Compressed Air. It was approved on behalf of the Council of the Standards Association of Australia on 19 July 1985 and published on 9 August 1985.

The following interests are represented on Committee SF/17:

Association of Offshore Diving Contractors of Australia
Australian Medical Association
Australian Mines and Metals Association (Incorporated)
Australian Pipeline Industry Association
Department of Defence
Department of Employment and Industrial Affairs, Qld.
Department of Health
Department of Health, N.S.W.
Department of Health, Qld.
Department of Industrial Relations, N.S.W.
Department of Labour, S.A.
Department of Minerals and Energy, Vic.
Department of Resources and Energy
Federation of Australian Underwater Instructors
Health Commission of Victoria
Manufacturing Interests
Maritime Services Board of New South Wales
Melbourne and Metropolitan Board of Works
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AUSTRALIAN STANDARD

**TRAINING AND CERTIFICATION OF
DIVERS
Part 4
BELL DIVING**

AS 2815.4—1985

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PREFACE

This standard was prepared by the Association's Committee on Work in Compressed Air under the supervision of the Safety Standards Board.

This standard forms one part (Part 4) of a series of standards relevant to the training and certification of underwater divers where the requirements of regulatory authorities and industry demand a prescribed degree of training and competence to ensure an adequate degree of safety, performance and economy.

This standard is particularly related to the further training of experienced air divers and underwater workers to permit them to operate safely and competently as bellmen and lockout divers. Such training and accreditation is the minimum required by regulatory authorities who are responsible for the control of deep diving off-shore, e.g. oil and gas exploration.

Other standards in the series relate to Commercial Air Diving With Surface Compression Facilities (Part 3), Restricted Commercial Air Diving (Part 2), and Non-recreational SCUBA Diving (Part 1). Other parts may also be prepared for training of other persons/operators involved in diving operations, e.g. Diving Supervisors.

This standard is largely based on requirements originally developed by the (U.K.) Manpower Services Commission (MSC) and the European Diving Technology Committee of the EEC, which were developed to meet the (U.K.) Health and Safety Diving Operations at Work Regulations. Such regulations require all divers entering construction or off-shore oil and gas industries in the United Kingdom to have achieved the appropriate requirements of the appropriate MSC underwater working training standard and to be certified as thus by the relevant Regulatory Authority.

Australian industry and the committee have strongly supported the objectives of developing training standards compatible with the U.K. standards and to provide for reciprocal acceptance of diver qualification/certification within Australia *and with* the U.K. and European authorities. Such reciprocity is most desirable to provide uniform control and regulations for the itinerant workforce of professional divers. To this end, close contact has been maintained with the U.K. authorities and arrangements for reciprocal approval of diver training schools (curriculum and facilities) have been negotiated by the Victorian Department of Minerals and Energy. In the U.K., the relevant Authority (Health and Safety Commission) has also established a Certification Board for Diving Training to advise on contingencies not covered by standards, as follows:

- (a) Criteria by which diver training may be assessed for certification purposes.
- (b) Criteria by which experience may be assessed for certification purposes of a standard not less than the standard of training in (a) above.
- (c) Establishments providing training satisfying the criteria in (a) above.
- (d) Equivalence to (a) and (b) above in respect of training and experience in foreign countries.
- (e) Arrangements for-
 - (i) issuing of certificates in respect of diver training;
 - (ii) declaring such certificates to be no longer valid; and
 - (iii) approval of persons taking part in diving operations as part of training.

Advice on how the above matters are to be handled in Australia should be sought from the relevant State Regulatory Authority (see Appendix E or Appendix F).

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
TRAINING AND CERTIFICATION OF DIVERS

PART 4—BELL DIVING

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard specifies the training activities and terminal objectives required for the training and accreditation of divers who are required to work safely and competently as bellmen and lockout divers.

1.2 PURPOSE AND TERMINAL OBJECTIVES.

1.2.1 Purpose. The purpose of this standard is to describe the organizational and syllabus requirements necessary to train experienced air divers to operate safely and competently as bellmen and lockout divers.

The following important aspects need to be stressed:

- (a) *Safety and health.* The safety and health of the diver and support team and the development of safe working practices must be integrated into all aspects of the training course.
- (b) *Team training.* The training, particularly in practical diving, needs to be directed not only towards developing individual competence, but also towards helping the trainee to think and act as a member of a team.

1.2.2 Terminal objectives. Terminal objectives can be classified broadly into two groups as follows:

- (a) Objectives whose purpose is to develop a degree of competence in the trainee.
- (b) Objectives which are limited to developing in the trainee an appreciation of, or acquaintance with, a piece of equipment or a procedure.

NOTES:

1. The wording and interpretation of the terminal objectives are very important as they are used to produce the topics to be included in the training program.
2. An example of criteria that may be developed by the training school to assess the level of competence achieved by a trainee is given in Appendix C.
3. Details of the curriculum and criteria for assessment are subject to approval by the relevant Regulatory Authority.

The terminal objectives have been grouped under five headings (Tables) in this standard as follows:

- Table 2.1 Diving theory
- Table 2.2 Deck compression chamber operations
- Table 2.3 Diving bell operations
- Table 2.4 Physiology and first aid
- Table 2.5 Relevant legislation and guidance.

1.3 APPLICATION. The standard recognizes that training may take place in a diving school or in-company.

Regulatory authorities may utilize the standard to—

- (a) approve establishments to run courses to this standard;
- (b) monitor courses to ensure standards are being maintained; and
- (c) issue or accept certificates of competence to or from persons who have completed the training

tasks specified herein and are adjudged competent to achieve the training objectives described herein.

NOTE: At the time of publication of this standard—

- (i) Investigations are under way to determine if reciprocal recognition of diver qualification and certification can be arranged between Australian and the European authorities (U.K. and EEC); and
- (ii) The Victorian Department of Minerals and Energy is currently working with other equivalent State regulatory bodies in Australia, under the auspices of the Australian Minerals and Energy Council (AMEC) Standing Committee on Off-shore Petroleum Legislation, to institute and implement a uniform national system for off-shore diver accreditation. This standard is seen as a vehicle by which uniform training criteria can be set in Australia for bell-diving activities.

1.4 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

- AS 2030.1 SAA Gas Cylinders Code
Part 1—Cylinders for Compressed Gases
Other than Acetylene
- AS 2299 Underwater Air Breathing Operations
- AS 2337 Gas Cylinder Test Stations
- AS 2815.3 Training and Certification of Divers
Part 3—Commercial Air Diving with
Surface Compression Facilities

1.5 SELECTION CRITERIA. The trainee **MUST** be in possession of a valid certificate of medical fitness to dive (see AS 2299) issued, after examination, by a doctor experienced in underwater medicine and accredited by the HSE (U.K.) or an equivalent Australian body, and approved by the relevant Regulatory Authority.

NOTE: At the time of publication of this standard, discussions are under way regarding formal Australian accreditation of medical doctors to perform medical examination and specialized treatment of divers.

The trainee should, as a minimum—

- (a) be 19 years of age.
- (b) be a competent commercial air diver approved to AS 2815.3 with at least 12 months' experience as a commercial diver or have experience acceptable to the relevant Regulatory Authority;
- (c) be able to—
 - (i) add, subtract, multiply and divide whole numbers, decimals and vulgar fractions;
 - (ii) calculate percentages; and
 - (iii) transpose and solve simple formulas, e.g. gas laws; and
- (d) be able to understand written and verbal communications and be able to communicate easily with other persons.

NOTE: This is particularly important where trainees or instructors are of differing nationalities.