



**Diver Certification  
Board of Canada**

# **Offshore Diving Supervisor Certification Scheme**

## ***Requirements for Certification***



## **Diver Certification Board of Canada**

The Diver Certification Board of Canada is a federally incorporated not-for-profit body which operates under the authority of a number of agreements with the National Energy Board, the Canada-Newfoundland Offshore Petroleum Board and the Canada-Nova Scotia Offshore Petroleum Board. Originally set up to replace the offshore diver certification regime of the National Energy Board and the offshore petroleum boards, the Diver Certification Board of Canada is now the only national body which certifies the competency of offshore and inshore commercial divers in Canada.

The competency of diving personnel is defined in the Canadian Standards Association's *Competency Standard for Diving Operations (CAN/CSA Z275.4)*.

Diving operations in support of offshore oil and gas operations in Canadian waters are subject to the Canada Oil and Gas Diving Regulations pursuant to the Canada Oil and Gas Operations Act, and to the Newfoundland Offshore Area Petroleum Diving Regulations and the Nova Scotia Offshore Area Petroleum Diving Regulations.

These regulations mandate that divers and supervisors must be certified as competent according to CAN/CSA Z275.4.

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November 2006

<b>1</b>	<b>Background .....</b>	<b>4</b>
<b>2</b>	<b>Scope .....</b>	<b>5</b>
<b>3</b>	<b>Terminology, Responsibilities and Career Structure.....</b>	<b>6</b>
3.1	Trainee Diving Supervisor .....	7
3.1.1	Trainee Air Diving Supervisor.....	7
3.1.2	Trainee Bell Diving Supervisor .....	8
3.2	Diving Supervisor.....	8
3.2.1	Air Diving Supervisor.....	8
3.2.2	Bell Diving Supervisor .....	8
3.3	Company Responsibility.....	9
<b>4</b>	<b>Diving Supervisor Examinations.....</b>	<b>12</b>
4.1	Content .....	12
4.2	Examination Procedures and Fees .....	12
4.3	Examination Results .....	13
4.4	Failure.....	13
4.5	Certificates.....	13
<b>5</b>	<b>Logbooks .....</b>	<b>13</b>
<b>6</b>	<b>Terminal Objectives for Trainee Diving Supervisor Courses .....</b>	<b>14</b>
6.1	Trainee Air Diving Supervisor.....	14
6.2	Trainee Bell Diving Supervisor .....	16
6.3	Optional Legislation Modules .....	16
<b>7</b>	<b>Country-Specific Recognition .....</b>	<b>17</b>
7.1	Special Requirements for Diving Supervisors in Norwegian Waters.....	17

## **1 Background**

The current system of diver certification in Canada is based on that created in 1988 by the Canada Oil & Gas Lands Administration (COGLA) under their diving regulations. The purpose of the system was to enhance the safety of divers working in the East coast offshore oil and gas industry. The system was modelled on that used in the North Sea; a system which had successfully and dramatically reduced the number of injuries and fatalities among divers working in harsh environmental conditions similar to those found in Canadian waters. The diver competency standards were also modelled on those used in the North Sea. By modelling the Canadian diving regulations on an existing, successful, internationally recognized system of regulations COGLA ensured that Canadian divers would be able to work internationally. At the same time, the system allowed foreign divers to participate in much of the work in the Canadian offshore.

The development of a national competency standard for professional divers in Canada was based on the COGLA initiative. Indeed, the COGLA diving specialist became the Chair of the Technical Committee of the Canadian Standards Association (CSA) which developed the competency standard. The make-up of the committee was strictly controlled by the CSA in order to ensure an appropriate balance among various stakeholder groups, including divers, diving contractors, commercial diver educators, and provincial and federal government regulators.

In February 1991 the federal government announced the disbandment of COGLA and the transfer of its responsibilities for diver certification to the National Energy Board (NEB).

In early 1984, the UK Association of Diving Contractors (AODC), assisted by the Safety and Technical Committee, started work on developing a scheme to provide an industry-wide training and certification standard. The scheme formally commenced on 1 January 1987 and provided for a 'grandfather' period of eighteen months (later extended to twenty-one months) during which time existing personnel were expected to have passed the examinations. Since 1 October 1988, all personnel working in the North Sea as diving supervisors have been required to have passed the necessary examinations and be in possession of an AODC/IMCA certificate confirming this.

In November of 2006 the Technical Committee of CSA responsible for the Competency Standard for Diving Operations (CAN/CSA Z275.4) accepted a recommendation that the competency standard and training requirements for the Offshore Air Diving Supervisor be modified to become aligned with the AODC/IMCA Offshore Diving Supervisor Scheme. Subsequently the DCBC modified its certifying requirements to maintain alignment with the CSA standard.

## **2 Scope**

The DCBC Offshore Diving Supervisor Scheme covers all offshore personnel either acting as a diving supervisor or gaining experience in order to become one. It applies to personnel supervising dives in the water using surface orientated (air) and mixed gas/bell diving techniques (hereinafter called 'air diving' and 'bell diving' respectively). This document also addresses the role of the diving supervisor in relation to a diving operation and the qualities required of a diving supervisor.

The basic requirements in order to commence training as a diving supervisor are laid down, together with the normal route for gaining experience, leading to appointment as a diving supervisor.

'Terminal Objectives' highlight the training needs of potential diving supervisors and the essential requirements of training courses and examination procedures provide for the certification of successful candidates.

### **3 Terminology, Responsibilities and Career Structure**

#### ***Diving Supervisor***

The term 'diving supervisor' refers to a person who has relevant experience and certification and who has been formally appointed by his company. For operations in Canadian waters under the jurisdiction of the Canada Nova Scotia Offshore Petroleum board or the Canada Newfoundland and Labrador Offshore Petroleum board supervisors are required to be certified by DCBC as competent to undertake supervision of the relevant diving operation.

Both offshore air and bell diving are covered. A supervisor who is qualified to take charge of an air operation only is not qualified to take charge of a bell operation. A bell diving supervisor may be qualified to take charge of both operations, depending on his previous experience and provided that his company is satisfied as to his competence.

#### ***Responsibilities***

- ◆ The supervisor's responsibilities are both legally defined in regulations and laid down in company procedures. In the event of any conflict between Canada's diving regulations and company procedures, the diving regulations must take precedence. Diving supervisors are advised to clarify any such anomalies before the diving operation starts.
- ◆ Generally speaking, the responsibilities of a diving supervisor are to:
  - ensure the safety of the diving team and any other persons who may be engaged in the operation;
  - complete the work to the satisfaction of the clients.

Supervisor duties may be summarised as follows:

- ◆ □to ensure that the diving operation is carried out in accordance with regulations and procedures, that all plant and equipment and suitable facilities (including emergency facilities) necessary for the safe conduct of the operation are available and properly maintained and certified;
- ◆ to ensure that the diving operation is carried out from a suitable and safe place; that the diving team consists of an appropriate number of suitably qualified personnel who are all medically fit (this includes being free from the influence of drugs and alcohol) and to take all reasonable precautions to ensure the safety of those engaged in the diving operation;
- ◆ □to ensure that the members of the diving team are aware of the company's diving rules; that the divers' medical certificates are in order; and that all equipment is checked before the start of a diving operation in accordance with specific national regulations;

- ◆ to consult with the master of the vessel or installation manager about the conduct of the diving operation, maintain the diving operation logbook and sign divers' logbooks;
- ◆ □to be present and in control while there is a diver in the water or under pressure and to report any accident or incident which led, or might have led, to serious injury.

### ***Aim of Supervision***

The aim of supervision is to get the job done safely and to the satisfaction of both the client and the employer, to which end the diving supervisor should build a successful team by considering and developing the individuals in the team. This calls for certain management and leadership skills and, in addition to initial theoretical training and offshore practical experience, a diving supervisor will be expected to have undertaken basic leadership training aimed at identifying situations which may arise and preparing the supervisor for decision making, problem solving and general personnel management.

### **3.1 Trainee Diving Supervisor**

This refers to a diver who has satisfactorily completed a diving supervisor training programme (designed to comply with this scheme) but who is gaining offshore experience prior to passing the DCBC theory examination(s) and subsequent formal appointment as a diving supervisor.

Initially, a trainee diving supervisor should only be allowed to supervise for short periods and always with a properly appointed diving supervisor present. As his experience increases, these periods may be extended. However, a certificated diving supervisor should remain in charge of the diving operation at all times and should not delegate his responsibility to the trainee.

#### **3.1.1 Trainee Air Diving Supervisor**

To qualify as a trainee air diving supervisor, a candidate must meet the following minimum criteria:

- a) Hold a DCBC Unrestricted Surface Supplied Diver certificate.
- b) Have spent at least two years as an offshore air diver and have completed 100 offshore commercial dives.
- c) Have satisfactorily completed a DCBC-approved Offshore Air Diving Supervisor training course as outlined in the CSA Occupational Diver Training Standard (CSA Z275.5). **Candidates are not eligible to attend the course until they comply with criteria a) & b) above.**

### 3.1.2 Trainee Bell Diving Supervisor

To qualify as a trainee bell diving supervisor, a candidate must meet the following minimum criteria:

- a) Hold a DCBC-recognised Bell Diver certificate or equivalent qualification under the DCBC reciprocal recognition arrangements.
- b) Have spent at least three years as a bell diver and have completed 400 lockout hours.
- c) Have satisfactorily completed a DCBC-approved Trainee Bell Diving Supervisor training course which meets the Terminal Objectives of this scheme and have passed the course examination. **Candidates are not eligible to attend such courses until they have complied with criteria a) and b) above.**

## 3.2 Diving Supervisor

### 3.2.1 Air Diving Supervisor

Having qualified as a trainee in accordance with 3.1.1 above, personnel must additionally fulfil the following minimum requirements before being eligible to apply for an Offshore Air Diving Supervisor certificate:

- a) Have logged at least 200 panel hours (under direct supervision) offshore on a minimum of 100 surface dives over a minimum period of 60 days working as a trainee air diving supervisor.
- b) While acting as a trainee air diving supervisor, supervise a minimum of 3 sham or mock emergency incidents
- c) Have achieved in total at least three years experience as an offshore air diver and have completed a total of 200 offshore commercial air dives.
- d) Have passed the DCBC Offshore Air Diving Supervisor examination.

### 3.2.2 Bell Diving Supervisor

Having qualified as a trainee in accordance with 3.1.2 above, personnel must additionally fulfil the following minimum requirements before being eligible to apply for a Bell Diving Supervisor certificate:

- a) Have acted as a trainee air diving supervisor on at least 10 offshore commercial air dives.
- b) Have logged at least 350 panel hours (under direct supervision) offshore on a minimum of 50 bell runs over a minimum period of 90 days working as a trainee bell diving supervisor.
- c) Have logged at least 360 panel hours at any time working either as an LST or as an assistant LST.



- d) Have been recommended by a company following satisfactory offshore reports confirming competence in accordance with the DCBC guidance on competence assurance and assessment.
- e) Have passed the DCBC Offshore Bell Diving Supervisor examination.

### **3.3 Company Responsibility**

The DCBC Offshore Diving Supervisor Certification Scheme is principally concerned with the training and experience necessary to allow an experienced diver to function safely and efficiently as a diving supervisor.

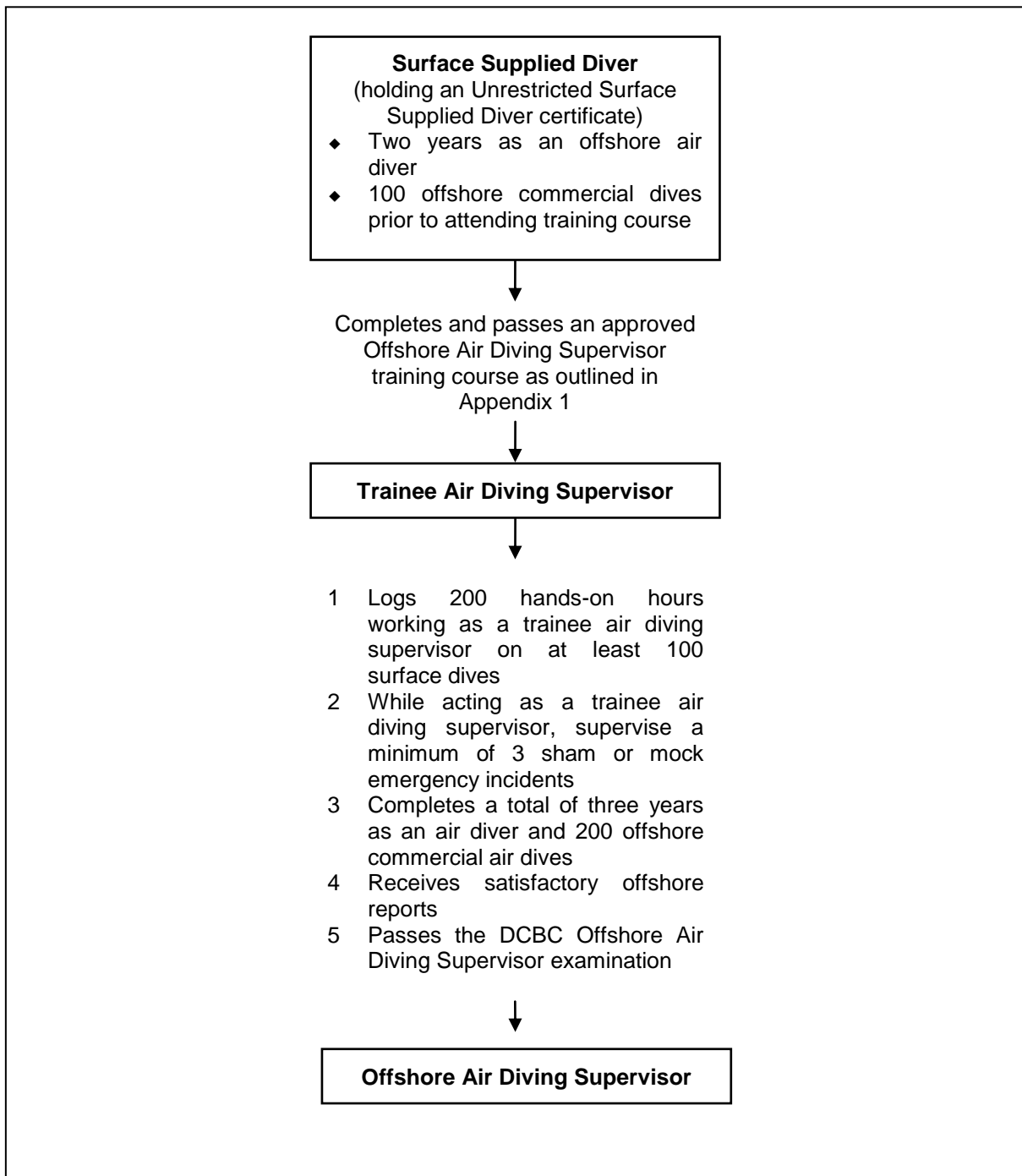
Companies should ensure that trainee diving supervisors are closely monitored offshore, encouraged to seek help and given guidance to areas requiring improvement. The company should be totally satisfied that a trainee has adequate experience and is sufficiently competent to progress to diving supervisor before suggesting that he apply for the DCBC diving supervisor examinations.

Before his first appointment as a diving supervisor, he should complete a company familiarisation programme, followed by an assessment on the company's diving rules, manuals and safety procedures. The length of such training should depend on the diving supervisor's ability and previous experience. The satisfactory completion of the assessment should be recorded and authenticated by the company in the diving supervisor's personal logbook. Such company familiarisation programmes and confirmation of their satisfactory completion are in addition to obtaining the DCBC supervisor qualification. It is important that all diving supervisors keep up to date with technical developments and any changes in company procedures.

Diving supervisors are responsible for keeping themselves apprised of all new regulations and guidance and are familiar with changes in safe working practices.

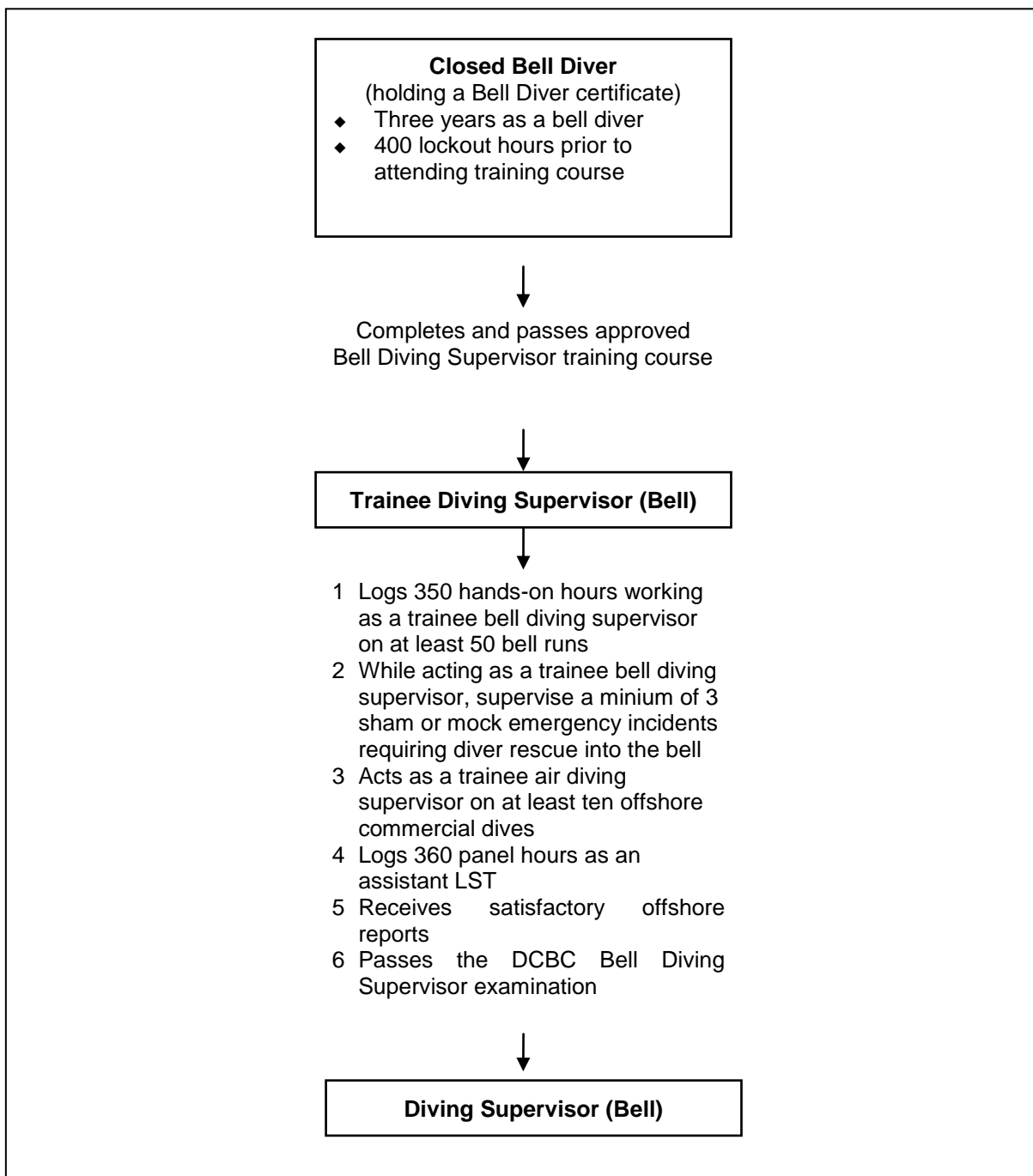
## Air Diver to Offshore Air Diving Supervisor

Figure 1



## Bell Diver to Bell Diving Supervisor

Figure 2



## 4 Diving Supervisor Examinations

Before applying to sit the DCBC examinations, candidates must meet **all** the eligibility criteria set out above.

### 4.1 Content

There are two compulsory examinations:

1. Offshore Air Diving Supervisor, which includes diving physics, diving physiology and knowledge of equipment and emergency procedures. Candidates must achieve a minimum of 70% in each of the three sections and must also achieve a minimum of 75% over the whole examination.
2. Bell Diving Supervisor, which includes all the knowledge elements of the Offshore Air Diving Supervisor examination, and knowledge of life support duties, chamber, bell and handling system equipment, and emergency procedures. Candidates must achieve a minimum of 70% in each section and a minimum of 75% over the whole examination.

### 4.2 Examination Procedures and Fees

Application to sit the examination must be made within three years of successful completion of the relevant training course and at least half the required panel hours should have been obtained in the two years prior to the application being made. Applicants who do not comply with these requirements may be required to undergo additional training and/or to gain additional offshore experience.

Applications must reach the DCBC at least one month before the proposed date of examination. Acceptance to sit an examination is valid for one year from the date acceptance is given and, should a candidate not have sat the examination within that year, he will be required to make a fresh application. It should be understood that additional training and/or offshore experience may be required.

All candidates will be charged the current fee for each examination module and for any re-sit. Examinations sat outside Canada will be charged at a higher rate in order to compensate for administrative, invigilation and postage costs. Some examination centres impose their own additional administration fees and, where appropriate, candidates will be informed of these when examination dates are set. Changes to the fees will be announced as they occur.

Supervision of examinations and the marking of papers will only be carried out by organisations or individuals approved by DCBC.

### **4.3 Examination Results**

Candidates will be informed as to whether they have passed or failed the examinations. No marks will be revealed and under no circumstances will examination papers be returned to candidates after an examination.

### **4.4 Failure**

A candidate who fails a module must wait 30 days from the date of examination before re-sitting. Should he fail a second time, he must wait a further 30 days before re-sitting a second time. Should he fail a third time, he must wait for at least one year before his company may apply again for him to sit that module. Such applications may only be made subject to additional supervisory experience having been gained in the intervening period and following satisfactory offshore reports confirming competence in accordance with the DCBC guidance on competence assurance and assessment.

A candidate who fails a compulsory module four times will be excluded from the scheme for a minimum period of two years from the date of the fourth failure, after which time he will have the opportunity of re-entering the scheme from scratch (i.e. as an air or bell diver) and proceeding in line with the requirements of either 3.1.1 or 3.1.2.

DCBC will keep a record of all candidates who attempt examination modules.

### **4.5 Certificates**

Individually numbered DCBC certificates bearing a photograph of the holder will be issued to successful candidates. Certificates will be endorsed as necessary to show which, if any, optional legislation modules have been passed.

The original certificate should be in the possession of the holder at all times whilst working as a supervisor.

The certificate does not replace the formal letter of appointment which the diving contractor may be required by law to issue. Neither does it exempt the bearer from complying with the requirements and standards in force in the country in which he is working.

## **5 Logbooks**

A Diving Supervisor Logbook must be used by all trainee supervisors, supervisors and, if maintained correctly, should give full details of an individual's experience as well as a brief daily work record. The logbook should be used to establish that required times have been spent at the relevant grades before promotion is considered.

## **6 Terminal Objectives for Trainee Diving Supervisor Courses**

### **6.1 Trainee Air Diving Supervisor**

The minimum course duration is 36 hours, including the course examination but excluding time spent on optional legislation module(s).

A trainee air diving supervisor should have sufficient theoretical, technical and operational experience to enable him to carry out his duties. It is expected that, having completed the course, he will have demonstrated the necessary knowledge of the following:

#### **a) Diving Physics**

- ◆ Basic calculations for the conversion of metric and imperial units
- ◆ Basic physical units used in diving
- ◆ Boyle's Law (calculating air volumes and diver's air consumption)
- ◆ Dalton's Law (partial pressure of gases at various depths)
- ◆ Charles' Law (the relationship between pressure changes and temperature changes)
- ◆ Archimedes' Principle (calculating the buoyancy and lifting requirements of various objects)
- ◆ Henry's Law (the effect of partial pressures on the solubility of gases in liquids and the corresponding effects on decompression)
- ◆ The principles of heat transfer by conduction, convection and radiation.

#### **b) Diving Physiology**

- ◆ The respiratory, circulatory, basic skeletal and nervous systems of the body
- ◆ The problems of maintaining divers in thermal balance and the symptoms and treatments of hypo- and hyperthermia
- ◆ The effects of gases on the body and their limits under pressure (in particular, oxygen, carbon dioxide, carbon monoxide and nitrogen)
- ◆ The effects of pressure on the body and the principles of decompression and therapeutic procedures
- ◆ The causes and symptoms of decompression sickness and barotrauma
- ◆ The contents, requirements and maintenance of various types of diving medical kits.

#### **c) Leadership and Control**

He should demonstrate an understanding of the following:

- ◆ The legislated responsibilities of diving supervisors
- ◆ The compilation and use of diving equipment checklists

- ◆ The general requirements of Permit to Work systems
- ◆ The reporting of accidents occurring in the water or on deck
- ◆ Leadership and communication, including the role of a leader, communication and possible conflicts
- ◆ Planning and organising work, including assigning work tasks and team building
- ◆ Leadership in emergency and stress situations, including symptom recognition, preventative measures, courses of action and transfer of experience.

**d) Air Diving Supervisor**

He should be:

- ◆ Able to prepare pre- and post-dive check lists and supervise their use for all diving operations and equipment under his control
- ◆ Familiar with all relevant published codes, guidance notes, safety notices or memoranda affecting air diving operations
- ◆ Able to keep accurate records of all operations under his control.

He should also have a thorough knowledge of:

- ◆ Safety on the surface, including the use of tools
- ◆ Safety in the water, paying particular reference to currents and sea states etc.
- ◆ Working methods of, and safe procedures for, commonly used tools and equipment
- ◆ The responsibilities of all members of the diving team
- ◆ Construction of valves and fittings used in air diving equipment
- ◆ Control panels and chambers, use and maintenance of BIBS systems, operation and design of medical locks, including interlock systems
- ◆ Air and gas requirements, handling, purity, oxygen cleanliness and analysis
- ◆ Surface supplied diving procedures and emergencies
- ◆ Scuba limitations
- ◆ Wet bell procedures and emergencies
- ◆ Chamber and surface decompression procedures and emergencies
- ◆ Decompression and therapeutic procedures
- ◆ General safety requirements of dive support vessels used in air diving operation
- ◆ Air diving from dynamically positioned vessels.

## 6.2 Trainee Bell Diving Supervisor

In addition to the 36 hours spent on the trainee air diving supervisor material, the trainee bell diving supervisor course will include an additional 24 hours, including the course examination but excluding time spent on any optional legislation module(s).

A trainee bell diving supervisor should be capable of efficiently running all types of diving operation and of remaining in charge at all times, including emergencies. This includes a thorough knowledge of all aspects covered in a, b, c and d above; and, in addition, be:

- ◆ able to supervise and have a sound working knowledge of bell launching systems, use of guide wires and weights, cross-hauling, constant tension devices, umbilicals, etc.
- ◆ familiar with the composition, uses and mixing of breathing gas mixtures and the need for their constant monitoring
- ◆ able to supervise the operation and control of diving bells, compression chambers and ancillary equipment including the bell mating trunking and medical lock
- ◆ familiar with the principles and function of inspired gas and diver heating systems
- ◆ familiar with all relevant published codes, guidance notes, safety notices and memoranda affecting bell diving
- ◆ conversant with all methods of diver evacuation and be able to relate them to a particular work site, both in respect of divers in a diving bell and dives under pressure in a decompression chamber.

## 6.3 Optional Legislation Modules

Trainee diving supervisors will be expected to demonstrate an understanding of the main points of current legislation in the country concerned which is relevant to diving and to:

- ◆ the main duties of employer and employee ;
- ◆ the specific duties and responsibilities of all members of the diving team;
- ◆ the requirements of and procedures for testing, examining and certifying equipment;
- ◆ the requirements of diving operation logs; and of all relevant codes, guidance notes, safety notices and memoranda published by the relevant national governing bodies.



## 7 Country-Specific Recognition

This Offshore Diving Supervisor Certification Scheme is recognised by the International Marine Contractors Association (IMCA), the Diving Inspectorate of the United Kingdom Health & Safety Executive (HSE) Offshore Safety Division (OSD), and the Australian Diver Accreditation Scheme. Special Requirements for Diving Supervisors in Norwegian Waters

Trainee Diving Supervisors should be aware that the NORSOK Standards for Manned Underwater Operations (U-100), revised in August 1999, set out the details of experience, which are slightly different from those of DCBC. They also call for additional training modules not included in the DCBC syllabus.

e) The main differences are as follows:

- ◆ for Norwegian operations, all trainee diving supervisors must have the following experience of working from dynamically positioned vessels as a diver:
  - 25 air dives from a vessel on dynamic positioning for a trainee air diving supervisor
  - 25 bell dives from a vessel on dynamic positioning for a trainee bell diving supervisor
- ◆ for Norwegian operations, all diving supervisors must have taken an approved course in advanced first aid and have received management (leadership) training;
- ◆ for Norwegian operations where a DP vessel is directly engaged in the dive operation, all supervisors must have undergone an introductory DP course.

f) The minor differences are as follows:

- ◆ NORSOK requires an air diving supervisor to have spent one year as an active trainee air diving supervisor, including 200 logged hours on the panel;
- ◆ DCBC requires an air diving supervisor to have spent at least 60 days working as a trainee air diving supervisor, including logging 200 hours on the panel.

Aspiring air diving supervisors intending to work in Norway are recommended to keep a careful log of hours spent as a trainee and, if made up to supervisor within a period of one year, to continue to log activities for the full year for the purpose of satisfying Norwegian guidelines.

