

Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)**Incorporation of the Health and Safety Standards in the Diving Regulation, 2001**

Under section 44 of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), I, Membathisi Mphumzi Sherpard Mdladlana, Minister of Labour, hereby incorporate the South African Bureau of Standards' Code of practice for portable Metal Containers for Compressed Gasses, SABS 019-1985, the "American Society of Mechanical Engineers. Safety Standard for Pressure Vessels for Human Occupancy, ANSI/ASME PVHO-1-1997", "Lloyd's Register of Shipping. Rules and Regulations for the Construction and Classification of Submersibles and diving systems, Lloyd's Register of Shipping, London, UK 1989", "Germanischer Lloyd. Rules for Classification and Construction, III - Offshore Technology, Part 1 - Underwater Technology, Germanischer Lloyd, Hamburg, Germany, 2000", "De Norske Veritas. Rules for certification of Diving Systems, De Norske Veritas, Hovik, Norway, 1988". and the American Bureau of Shipping. Rules for Building and Classing Underwater Vehicles, Systems and Hyperbaric Facilities, American Bureau of Shipping, New York, U.S.A. 1979" into the Diving Regulations 2001.

M M S MDLADLANA
MINISTER OF LABOUR

ANNEXURE A
(on front cover)

DIVER'S LOGBOOK

1. This logbook must at the request of an inspector be produced for inspection.
2. The holder of this logbook must enter herein a complete report on every diving operation undertaken by him or herself, sign the report, and have it countersigned by the diving supervisor.
3. The logbook must be kept in safe custody by the holder thereof.

PERSONAL DETAILS OF DIVER

(on inside of front cover)

Full name:.....

Identity number:.....

Class of diver

Restrictions

.....

.....

.....

.....

.....

.....

Type of diving equipment for which diver is qualified:

Type of equipment

Date

Diving supervisor

(1)

(2)

(3)

(4)

(5)

Name of employer:

Date:

(1)

.....

(2)

.....

(3)

.....

PARTICULARS OF DIVING OPERATIONS

(on each subsequent page)

Date of diving operation

Name of supervisor

Name of standby diver

Name of buddy diver

Place

Nature of dive

Depth

Diving equipment

Breathing mixture

Time left surface

Bottom time

Time arrived at surface

Diving time

Decompression schedule

Remarks

.....
.....

Diver

Diving supervisor

ANNEXURE B**DIVING OPERATIONS RECORD**

- Name and address of the company/institution
- Location, time and date of diving operations
- Names of the diving supervisor, standby diver, diver and line attendant
- Depth of dive
- Time Left Surface (per diver)
- Bottom time (per diver)
- Time arrived at surface (per diver)
- Approximate water temperature and thermal protection used
- Environmental conditions (approximate sea state, underwater visibility and underwater currents)
- Decompression tables and schedule
- Elapsed time since last pressure exposure if less than twenty four hours or repetitive dive designation
- Breathing mixture used and composition
- Type of work performed
- Type of diving equipment worn by diver(s)
- Any unusual conditions, e.g. contaminated water.

For each diver for whom a decompression sickness is suspected or symptoms are evident, the following additional information shall be recorded and maintained:

- Description of decompression sickness symptoms, including depth and time of onset.
- Description and results of treatment.

ANNEXURE C**REGULATION 3 (8) OF DIVING REGULATIONS, 2001****1. Additional matters in respect of which class I saturation diver has to attain a satisfactory standard of competence are the following:**

- (a) The theory of mixed gas, saturation and bell diving.
- (b) Gases and gas systems.
- (c) Diving safely and competently to depths exceeding seventy metres from a diving bell.
- (d) Use of diver communication systems appropriate to mixed gas, saturation and bell diving.
- (e) Diving bell operation, lockout and re-entry procedures, transferring to surface compression chamber, recompression on mixed gas, decompression and decompression tables appropriate to mixed gas, saturation and bell diving.
- (f) Emergency procedures for mixed gas, saturation and bell diving.
- (g) First aid appropriate to emergencies arising in mixed gas, saturation and bell diving.
- (h) Relevant legislation and guidance.
- (i) Appropriate practical training for deep diving.

2. Matters in respect of which a class II surface-supplied mixed-gas diver has to attain a satisfactory standard of competence are the following:

- (a) The theory of mixed gas and bell diving.
- (b) Gases and gas systems.
- (c) Diving safely and competently in various conditions not exceeding seventy metres in depth with the aid of a stage and an open bell.
- (d) Use of diver communication systems appropriate to mixed gas and bell diving.
- (e) Diving bell operations, recompression on mixed gas, decompression and decompression tables appropriate to mixed gas and bell diving.
- (f) Emergency procedures for mixed gas and bell diving.
- (g) First aid appropriate to emergencies arising in mixed gas and bell diving.

- (h) Relevant legislation and guidance.
- (i) Surface compression chamber operations and therapeutic recompression appropriate to mixed gas diving.
- (j) Appropriate practical training for deep diving.

3. **Matters in respect of which a class II surface-supplied air diver has to attain a satisfactory standard of competence are the following:**

- (a) The theory of air diving.
- (b) Use of scuba and surface-supplied diving equipment.
- (c) Diving safely and competently in various conditions not exceeding fifty metres in depth, including the safe use of hand tools, power tools and equipment.
- (d) Use of diver communication systems appropriate to air diving.
- (e) Emergency procedures for air diving.
- (f) Surface compression chamber operations, therapeutic recompression, decompression and decompression tables appropriate to air diving.
- (g) First aid appropriate to emergencies arising in air diving.
- (h) Relevant legislation and guidance.
- (i) Appropriate practical training for deep diving.

4. **Matters in respect of which a class III surface-supplied nitrox diver has to attain a satisfactory standard of competence are those matters specified for a class III surface-supplied air diver, including the following:**

- (a) The theory of nitrox diving to thirty metres.
- (b) Gases and gas systems appropriate to nitrox on surface-supply.
- (c) Decompression tables and recompression.
- (d) Emergency procedures for nitrox on surface-supply.
- (e) First aid appropriate to emergencies arising out of nitrox diving.
- (f) Appropriate practical training for diving with surface-supply nitrox equipment.

5. **Matters in respect of which a class III surface-supplied air diver has to attain a satisfactory standard of competence are the following:**

- (a) The theory of air diving

- (b) Use of surface-supplied air diving equipment
- (c) Use of scuba (complete syllabus of class IV scuba air diver)
- (d) Diving safely and competently in various conditions at depths not exceeding thirty metres.
- (e) Use of diver communications systems appropriate to air diving.
- (f) Emergency procedures for air diving.
- (g) Surface compression chamber operations, therapeutic recompression, decompression and decompression tables appropriate to air diving.
- (h) First aid appropriate to emergencies arising in air diving.
- (i) Relevant legislation and guidance.
- (j) Appropriate practical training for deep diving.

6. **Matters in respect of which a class IV scuba nitrox diver has to attain a satisfactory standard of competence are those matters specified for a class IV scuba air diver, including the following:**

- (a) The theory of nitrox diving to thirty metres.
- (b) Gases and gas systems appropriate to nitrox on scuba.
- (c) Decompression tables and recompression.
- (d) Emergency procedures for nitrox on scuba.
- (e) First aid appropriate to emergencies arising out of nitrox diving.
- (f) Appropriate practical training for diving with scuba nitrox equipment.

7. **Matters in respect of which a class IV scuba air diver has to attain a satisfactory standard of competence are the following:**

- (a) The theory of air diving.
- (b) Use of scuba.
- (c) Diving safely and competently in various conditions at depths not exceeding thirty metres.
- (d) Use of diver communication systems appropriate to air diving.
- (e) Emergency procedures for air diving.
- (f) Therapeutic recompression, decompression and decompression tables appropriate to air diving.

- (g) First aid appropriate to emergencies arising in air diving.
- (h) Relevant legislation and guidance.
- (i) Appropriate practical training for scuba diving.

ANNEXURE D
MINIMUM PERSONNEL REQUIREMENTS

DEPTH RANGE	SCUBA AIR	SCUBA NITROX	HOKKAH: ONLY SCIENTIFIC, ARCH. & SHELLFISH DIVING	SURFACE-SUPPLIED AIR	SURFACE-SUPPLIED MIXED GAS	SATURATION DIVING
0 - 15m	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Diving supervisor (as defined)	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Diving supervisor (as defined)	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Diving supervisor (as defined)	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Diving supervisor (as defined)	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Diving supervisor (as defined) 1 x Gas technician	See the last 2 pages for the list
15 - 30m	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Diving supervisor	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Diving supervisor	NO DIVING ALLOWED	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Diving supervisor	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Diving supervisor 1 x Gas technician	
30 - 50m	2 x Diver (Buddied up)	2 x Diver (Buddied up)	NO DIVING ALLOWED	1 x Diver 1 x Line attendant	1 x Diver 1 x line attendant	

	1 x Line attendant 1 x Standby diver 1 x Diving supervisor	1 x Line attendant 1 x Standby diver 1 x Diving supervisor	1 x Standby diver 1 x Standby attendant 1 x Diving supervisor	1 x Standby diver 1 x Standby attendant 1 x Diving supervisor 1 x Gas technician	
50 - 70m	NO DIVING ALLOWED	NO DIVING ALLOWED	NO DIVING ALLOWED	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Standby attendant 1 x Diving supervisor 1 x Gas technician	
70 - 100m	NO DIVING ALLOWED	NO DIVING ALLOWED	NO DIVING ALLOWED	NO DIVING ALLOWED	1 x Diver 1 x Line attendant 2 x Standby diver 1 x Diving supervisor 1 x Gas technician 1 x Diver medic 2 x LST

MINIMUM SATURATION DIVING MANNING LEVELS FOR TWO DAYS

1 x Diving supervisor
 2 x Life support technicians
 2 x Divers in saturation
 1 x Standby diver (Diver medical technician)
 1 x Mechanical technician
 1 x Electrical technician

SIX DIVERS

2 x Diving supervisors
 2 x Life support technicians
 4 x Divers in saturation
 1 x Standby diver (Diver medical technician)
 1 x Mechanical technician
 1 x Electrical technician

FOUR DIVERS

2 x Diving supervisors
 2 x Life support technicians
 4 x Divers in saturation
 1 x Standby diver (Diver medical technician)
 1 x Mechanical technician
 1 x Electrical technician

The above manning levels are the absolute minimum. Additional personnel will be required for increased saturation team size.

GUIDE

to the

DIVING REGULATIONS, 2001

by the

CHIEF DIRECTORATE:
OCCUPATIONAL HEALTH AND SAFETY

DEPARTMENT OF LABOUR

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1. INTRODUCTION

The Diving Regulations, 2001, provide a legal framework for the thorough planning of safe diving in South Africa. This guide was designed to explain in simple language what people who are involved in the diving business or the training of divers should do in order to comply with the law. The Diving Regulations, 2001 remain the sole authority for the provisions of the law. Therefore, this guide must be read in conjunction with the Diving Regulations, 2001

2. APPLICATION

These regulations are aimed primarily at the health and safety of persons employed in diving operations in the Republic of South Africa and its territorial waters. This regulation is promulgated under the Occupational Health and Safety Act, 1993 (As amended).

The Diving Regulations, 2001 apply to persons involved in commercial diving operations where an employer-employee relationship exists. Such a relationship exists when one person provides another person with work and remunerates that person or expressly or tacitly undertakes to remunerate him/her, but excludes a Temporary Employment Service in terms of the Labour Relations Act, 1995 (Act 66 of 1995).

This relationship also exists when any person who is employed by or work for an employer and who receives or is entitled to receive any remuneration or who works under the direction or supervision of an employer or any other person.

Finally, these regulations shall not apply to persons as stipulated in regulation 2(2) of the Diving Regulations, 2001.

3. TRAINING OF DIVERS

Herewith the requirements to be met by organisations for diver training as per Regulation 3 of the Diving Regulations, 2001, viz.

3.1.Scope

3.1.1. In terms of Regulation 3(1) of the Diving Regulations 2001, no person shall train another person to dive unless he/she has been approved as a training organisation;

- 3.1.2. In terms of Regulation 3(2) of the Diving Regulations, any person who has at his/her disposal such staff, plant, equipment and other ancillary facilities as to enable him/her to offer the curriculum of instruction and training for learner divers framed by the Chief Inspector for approval as a training organisation. The Chief Inspector may approve such application subject to such condition as he/she may impose, as advised by the Chairperson of the Council for Diving;
- 3.1.3. The application must indicate to what level the applicant intends training learner divers e.g. Class III. This is of utmost importance, as specific equipment is needed for training the different Classes of divers; and
- 3.1.4. A careful study also has to be made of the syllabus for each Class of diver, in order to know what equipment is necessary to train the particular Class of learner diver.

3.2 REQUIREMENTS

3.2.1 Personnel

An organisation, approved for diving training, shall have in its employ the following viz.

- 3.2.1.1. A full time diving instructor, who is registered as a diving supervisor in terms of Regulation 15 of the Diving Regulations, 2001. It must be borne in mind that in order for a diving instructor to train learner diver, he/she must at least be registered as a diving supervisor to the level he/she wants to train. E.g. a Class III diving supervisor may train learner divers to Classes IV and III, but not Class II;
- 3.2.1.2. To be approved as a diving instructor the diving supervisor must have gained at least 2 years experience and have logged 200 hours as a diving supervisor for that particular Class he/she wants to train to. A further requirement would be that diving supervisor must at least have completed a basic course in instructional techniques;
- 3.2.1.3. In the initial stages of training there must be a registered diver (instructor) to accompany the learner diver, as stipulated in regulation 3(3)(b) of the Diving Regulations, 2001. Once the diving instructor is satisfied that the learner diver is sufficiently experienced, he/she may be permitted to undertake dives, unaccompanied to a depth of not more than 10 meters, unless the learner diver is on a life-line or umbilical;

- 3.2.1.4. A person who is qualified to render first aid and who has a thorough knowledge of the treatment to be applied and of the equipment to be used, including applying oxygen, in cases of drowning, decompression sickness and other ailments associated with diving operations. These persons should be on duty at the control point at the surface when dives are undertaken. (See Regulation 7(2)(c)(i) of the Diving Regulations, 2001);
- 3.2.1.5. A line attendant, if a life-line is used. Note that learner divers may be used to act as line attendants if there are enough learner divers on course. If a learner diver is on SCUBA and not attached to a life-line, then through water voice communications must be used. If only two persons are being trained, there will have to be a line attendant, if a life-line is used, other than the persons under training;
- 3.2.1.6. For the training of Class I divers, a person who has qualified as a life support technician when saturation or bell dives are undertaken, will remain on duty at all times. (See Regulation 7(2)(b) of the Diving Regulations, 2001);
- 3.2.1.7. A standby diver, in terms of Regulation 7(2)(b) of the Diving Regulations, 2001, who shall be in immediate readiness to dive. The regulations also stipulate that where two divers are in the water at the same time and are near to each other to communicate with and render assistance to each other in an emergency, the one may be deemed to be a standby diver for the other. One must take into account things like water visibility, confined space, underwater hazards, etc. before allowing this to take place. **The diving instructor must conduct a hazard identification and risk assessment exercise, before applying this practice.**
- 3.2.1.8. Such persons, as are necessary to man any machinery and equipment, which may be required during the diving operation e.g. a person who is qualified in the operation of a compression chamber as required in terms of Regulation 10 (c) of the Diving Regulations, 2001. This is not compulsory for the training of learner divers up to the level of Class III, because no surface decompression is required when training learner divers in Classes IV and III. It is however compulsory for Class II and I. It must be remembered that for Classes IV and III training dives in a compression chamber is still required; and
- 3.2.1.9. Refer to Annexure D of the Diving Regulations, 2001, for additional information.

3.2.2. Facilities

An organisation approved for diving training shall have the following facilities at its disposal, viz.

- 3.2.2.1 a suitable room for lecture equipment with a black/white board, seats, tables, etc.;
- 3.2.2.2. adequate change rooms with showers and toilets;
- 3.2.2.3. a reasonable selection of tools for the use in the maintenance of diving equipment. The services may be contracted out;
- 3.2.2.4. First-aid facilities, it may be that the organisation itself is an approved training organisation for first-aid, approved by the Chief Director: Occupational Health and Safety. If not, the services of an approved organisation can be used to provide the necessary training. Please note that for all Classes of divers, first-aid training must be provided, at least to level I. For diving supervisors, first-aid training must be provided to level 3. The minimum first-aid equipment as stipulated in Regulation 3(4) of the General Safety Regulations, 1996, Appendix A, must be available; and
- 3.2.2.5. a diving tank or swimming pool for confined water instruction purposes.

3.2.3. Literature

An organisation approved for diving training shall have the following literature to aid teaching, instruction, maintenance, etc., viz.

- 3.2.3.1. a copy of the Occupational Health and Safety Act, 1993 (Act 85 of 1993) and Regulations (As amended) and Mine Health and Safety Act, 1996 (Act No 29 of 1996) ;
- 3.2.3.2. a copy of the approved syllabus, for the Class of divers to be trained, i.e. Class III;
- 3.2.3.3. a copy of the approved syllabus, for the training of diving supervisors;
- 3.2.3.4. a selection of the manuals, listed in the syllabus, covering all the necessary course material;
- 3.2.3.5. copies of the relevant SABS Codes of Practice i.e. SABS 019- 1985 (as amended) and other relevant guidance notes, standards and Codes of Practice;

- 3.2.3.6. a complete set of decompression and therapeutic recompression tables, together with the application procedures e.g. the Royal Navy Diving Tables, US Navy Standard Air Decompression Tables, etc.; and
- 3.2.3.7. any other documents, charts, etc. necessary for the instruction in and planning of diving operations. This will include Diver's log books and the diving operations record that must be completed and signed by the diving supervisor for each particular dive, in terms of regulation 7(2)(r) of the Diving Regulations, 2001.

3.2.4. Diving Plant And Equipment

An organisation approved for diver training shall have the following diving plant and equipment available for training purposes for the different Classes of divers, viz.

3.2.4.1. Class I

- (i) A closed bell and a saturation system, which must be designed and constructed in accordance with a Code of Practice incorporated into these Regulations, in terms of Section 44 of the Act;
- (ii) These standards are the American Society of Mechanical Engineers' Safety Standard for Pressure Vessels for Human Occupancy, ANSI/ASME PVHO - 1 - 1984, and the Lloyd's Register of Shipping Rules and Regulations for the Construction and Classification of Submersibles and Diving Systems Part 1 to 7. Germanischer Lloyd Rules for Classification and Construction Offshore Technology Chapter 1,2, and 3 (Part 1), De Norske Veritas (DNV)-Rules for certification of Diving Systems and the American Bureau of Shipping, Underwater System and vehicles. Rules into the Diving Regulations, 2001, shall be relevant to the date of contract.

3.2.4.2. Class II

- (i) A compression chamber, which must be designed and constructed as mentioned for Class I divers; and
- (ii) An open bell (Wet bell) and diving stage must be used for the raising and lowering of divers to and from the underwater workplace.

3.2.4.3. Class III

- (i) No surface decompression is required in the training of these divers. They must however do chamber dives and a chamber must therefore be available.

3.2.4.4. Class IV

- (i) No surface decompression is required in the training of these divers. They must however do chamber dives and a chamber must therefore be available.

NOTE:

The equipment and facilities necessary for the compression chamber is listed under Regulation 9(2) of the Diving Regulations, 2001.

If a compression chamber is not available at the Diving School which is registered to train learner divers up to Class III, written confirmation must be obtained from a company or user that will make a chamber available for chamber dives and in cases of emergency. This is of utmost importance, because the diving instructor must have access to the facility 24 hours a day.

3.2.5. **Diving Associated Equipment**

An organisation approved for diver training shall have the following equipment associated with diving and diving equipment available, viz.

- 3.2.5.1. Underwater voice communication equipment when training Classes I, II and III. For Class IV training, a through-water communication system must be used, if no life-line is used. Training must be however provided in both scenarios for Class IV divers;
- 3.2.5.2 an adequate supply of oxygen piped to the compression chamber. This is for therapeutic treatment and for surface O₂ decompression dives up to 18 meters;
- 3.2.5.3. at least four sets of O₂ bibs, two in the fore-chamber and two in the main-chamber of the compression chamber;
- 3.2.5.4. a sufficient supply of the appropriate breathing mixture must be readily available at the required pressure to provide for all the activities of the dive team for the duration of the diving operation. This will entail that storage cylinders be kept at the compression chamber, in case of an emergency e.g. compressor failure. Also, if learner divers are diving with surface supplied diving equipment, they must have bailout cylinders on their backs;
- 3.2.5.5. a high pressure air compressor for recharging storage and diving cylinders. The services of an outside company or person may be used to fill these cylinders; and
- 3.2.5.6. For Classes II and III, at least two different sets of commonly used surface supplied diving equipment, (demand and free flow) as per the definition of surface supplied diving equipment must be used. This entails the use of full face

masks or helmets and it must be of a type that has an oral/nasal facility to prevent CO₂ build-up, unless a free flow helmet is used.

3.2.6. Hand And Power Tools

An organisation approved for diving training shall have the following types of tools available for training purposes and actual use, viz.

3.2.6.1. Hand tools;

3.2.6.2. Pneumatic and /or Hydraulic power tools;

3.2.6.3. Electric and / or gas cutting and welding equipment; and

3.2.6.4. Any other tools that the instructor may deem necessary

NOTE: These requirements must be read with the syllabi for the different Classes of divers.

3.3. Classes Of Divers

3.3.1. Class I Saturation Diver

Means a Class II surface supplied diver who has been trained in all aspects of mixed gas, saturation and bell diving to a depth of at least 100 meters. In order for a person to qualify to become a learner diver for this Class, he/she must have spent at least 50 hours bottom time in diving operations, 15 hours of which should have been to depths greater than 30 meters. This after he/she was registered as Class II surface supplied mix gas diver. The learner diver then has to undergo underwater diving training of at least 50 hours to a depth of at least 100 meters in order to qualify to be registered as a Class I saturation diver.

3.3.2. Class II Surface-Supplied Mixed Gas Diver

Means a Class II surface-supplied air diver trained in all aspects of mixed gas diving using surface-supplied diving equipment with open bell and diving stage, limited by decompression tables utilised (non- saturation dive), to depths not exceeding 70 meters. A learner diver for this Class shall undergo underwater diving training of not less than 10 hours bottom time of additional training, after qualifying as a Class II surface-supplied air diver, using mixed gas. This will be to depths greater than 30 meters but not exceeding 70 metres, with the use of open bell and diving stage. This is in order to qualify to register as a Class II surface-supplied mixed gas diver.

3.3.3. Class II Surface-Supplied Air Diver

Means a Class III surface-supplied air diver trained in all aspects of air diving using surface-supplied diving equipment, power-tools, wet bell and/or diving stage, and surface decompression procedures to a depth of 50 meters. A learner diver for this Class shall undergo underwater diving training of not less than 35 hours bottom time, to depths not exceeding 50 meters, so as to qualify for registration as a Class II surface-supplied air diver.

3.3.4. Class III Surface-Supplied Nitrox Diver

Means a Class III surface-supplied air diver trained in all aspects of nitrox diving using surface-supplied diving equipment to a depth not exceeding 30 meters, without the use of a compression chamber. A learner diver for this Class shall undergo underwater diving training of not less than 7 hours bottom time of additional training, using nitrox gas, after qualifying as a Class III surface-supplied air diver. This is in order to qualify to register as a Class III surface-supplied nitrox diver.

3.3.5. Class III Surface-Supplied Air Diver

Means a Class IV SCUBA air diver trained in all aspects of air diving using surface-supplied diving equipment to a depth not exceeding 30 meters, without the use of a surface compression chamber. A learner diver for this Class shall undergo underwater diving training of not less than 20 hours bottom time, to depths not exceeding 30 meters, so as to qualify for registration as a Class III surface-supplied air diver.

3.3.6. Class IV Scuba Nitrox Diver

Means a Class IV SCUBA air diver trained in all aspects of nitrox diving using SCUBA to a depth not exceeding 30 meters, without the use of a surface compression chamber. A learner diver for this Class shall undergo underwater diving training of 5 hours bottom time, using nitrox gas, after completing a Class IV SCUBA air divers course, to depths not exceeding 30 meters, so as to register as a Class IV SCUBA nitrox diver.

3.3.7. Class IV Scuba Air Diver

Means a diver trained in all aspects of air diving using SCUBA to a depth not exceeding 30 meters, without the use of a surface compression chamber. A learner diver for this Class shall undergo underwater diving training of not less than 15 hours bottom time, to depths not exceeding 30 meters, so as to qualify for registration as a Class IV SCUBA air diver.

3.3.8. Standards Of Competence

1. ADDITIONAL MATTERS IN RESPECT OF WHICH CLASS I SATURATION DIVER HAS TO ATTAIN A SATISFACTORY STANDARD OF COMPETENCE ARE THE FOLLOWING:

- (a) The theory of mixed gas, saturation and bell diving.
- (b) Gases and gas systems.
- (c) Diving safely and competently to depths exceeding 70m from a diving bell.
- (d) Use of diver communication systems appropriate to mixed gas, saturation and bell diving.
- (e) Diving bell operation, lockout and re-entry procedures, transferring to surface compression chamber, recompression on mixed gas, decompression and decompression tables appropriate to mixed gas, saturation and bell diving.
- (f) Emergency procedures for mixed gas, saturation and bell diving.
- (g) First aid, appropriate to emergencies arising in mixed gas, saturation and bell diving.
- (h) Relevant legislation and guidance.
- (i) Appropriate practical training for deep diving.

2. MATTERS IN RESPECT OF WHICH A CLASS II SURFACE-SUPPLIED MIXED GAS DIVER HAS TO ATTAIN A SATISFACTORY STANDARD OF COMPETENCE ARE THE FOLLOWING:

- (a) The theory of mixed gas and bell diving.

- (b) Gases and gas systems.
 - (c) Diving safely and competently in various conditions not exceeding 70m in depth with the aid of a stage and an open bell.
 - (d) Use of diver communication systems appropriate to mixed gas and bell diving.
 - (e) Diving bell operations, recompression on mixed gas, decompression and decompression tables appropriate to mixed gas and bell diving.
 - (f) Emergency procedures for mixed gas and bell diving.
 - (g) First aid appropriate to emergencies arising in mixed gas and bell diving.
 - (h) Surface compression chamber operations and therapeutic recompression appropriate to mixed gas diving.
 - (i) Relevant legislation and guidance.
 - (j) Appropriate practical training for deep diving.
3. **MATTERS IN RESPECT OF WHICH A CLASS II SURFACE-SUPPLIED AIR DIVER HAS TO ATTAIN A SATISFACTORY STANDARD OF COMPETENCE ARE THE FOLLOWING:**
- (a) The theory of air diving.
 - (b) Use of scuba and surface-supplied diving equipment.
 - (j) Diving safely and competently in various conditions not exceeding 50m in depth, including the safe use of hand tools, power tools and equipment.
 - (k) Use of diver communication systems appropriate to air diving.
 - (l) Emergency procedures for air diving.
 - (m) Surface compression chamber operations, therapeutic recompression, decompression and decompression tables appropriate to air diving.
 - (n) First aid appropriate to emergencies arising in air diving.
 - (o) Relevant legislation and guidance.
 - (p) Appropriate practical training for deep diving.

4. **MATTERS IN RESPECT OF WHICH A CLASS III SURFACE-SUPPLIED NITROX DIVER HAS TO ATTAIN A SATISFACTORY STANDARD OF COMPETENCE ARE THOSE MATTERS SPECIFIED FOR A CLASS III SURFACE SUPPLIED AIR DIVER, INCLUDING THE FOLLOWING:**
- (a) The theory of nitrox diving to 30m.
 - (b) Gases and gas systems appropriate to nitrox on surface-supply.
 - (c) Decompression tables and recompression.
 - (d) Emergency procedures for nitrox on surface-supply.
 - (a) First aid appropriate to emergencies arising out of nitrox diving.
 - (f) Appropriate practical training for diving with surface-supply nitrox equipment.
5. **MATTERS IN RESPECT OF WHICH A CLASS III SURFACE SUPPLIED AIR DIVER HAS TO ATTAIN A SATISFACTORY STANDARD OF COMPETENCE ARE THE FOLLOWING:**
- (a) The theory of air diving
 - (b) Use of surface supplied diving equipment
 - (c) Use of scuba – complete class IV scuba air diver’s syllabus
 - (d) Diving safely and competently in various conditions at depths not exceeding 30 m
 - (e) Use of diver communications systems appropriate to air diving.
 - (f) Emergency procedures for air diving.
 - (g) Surface compression chamber operations, therapeutic recompression, decompression and decompression tables appropriate to air diving.
 - (h) First- aid appropriate to emergencies arising in air diving.
 - (i) Relevant legislation and guidance.
 - (j) Appropriate practical training for deep diving.

6. MATTERS IN RESPECT OF WHICH A **CLASS IV SCUBA NITROX DIVER** HAS TO ATTAIN A SATISFACTORY STANDARD OF COMPETENCE ARE THOSE MATTERS SPECIFIED FOR A CLASS IV SCUBA AIR DIVER, INCLUDING THE FOLLOWING:
- (a) The theory of nitrox diving to 30m.
 - (b) Gases and gas systems appropriate to nitrox on scuba.
 - (c) Decompression tables and recompression.
 - (d) Emergency procedures for nitrox on scuba.
 - (e) First-aid appropriate to emergencies arising out of nitrox diving.
 - (f) Appropriate practical training for diving with scuba nitrox equipment.
7. MATTERS IN RESPECT OF WHICH A **CLASS IV SCUBA AIR DIVER** HAS TO ATTAIN A SATISFACTORY STANDARD OF COMPETENCE ARE THE FOLLOWING:
- (a) The theory of air diving.
 - (b) Use of scuba.
 - (c) Diving safely and competently in various conditions at depths not exceeding 30 m.
 - (d) Use of diver communication systems appropriate to air diving.
 - (e) Emergency procedures for air diving.
 - (f) Therapeutic recompression, decompression and decompression tables appropriate to air diving.
 - (g) First aid appropriate to emergencies arising in air diving.
 - (h) Relevant legislation and guidance.
 - (i) Appropriate practical training for scuba diving.
-

3.3.9. Registration Of Learner Divers

A person, who wants to do a commercial diving course at an approved diving school, must be registered with the Department of Labour as a learner diver for that class of diving.

In order to qualify for registration, the prospective learner diver must comply with the following requirements, viz.

- ◆ At least be 18 years old;
- ◆ Have a valid medical certificate of fitness;
- ◆ The approved diving school must submit a letter as proof that he/she has been accepted.

An application form must be completed for each prospective learner diver at the diving school, which must also be submitted with the letter from the diving school, to the Department of Labour. An example of the application form (Form D1) is attached to this document.

The Diving School will submit the applications to:

THE CHIEF DIRECTOR: OCCUPATIONAL HEALTH AND SAFETY
PRIVATE BAG X117
PRETORIA
0001

The following must accompany the application form, viz.

- ◆ A registration fee of R50, 00 must be paid in the form of an uncanceled revenue stamp. The stamp must be placed at the top right-hand corner on the application form;
- ◆ X 2 certified photographs (28 x 25 mm);
- ◆ Certified copy of birth certificate or Identification Book (ID);
- ◆ Letter of confirmation from the diving school; and
- ◆ Certified copy of the medical certificate issued by the Designated Medical Practitioner.

Once the Department of Labour has processed the applications, the learner divers' certificates will be sent back to the diving school, which will forward it to the learner divers concerned. These certificates will only be valid for a period of one year. Please note that all learner divers **must** be in possession of their learner diver's certificates before training commences.

3.3.10. Registration Of Divers

Learner divers wishing to register as divers for any Class of diving, must:

- ◆ have received appropriate training from an approved diving school;
- ◆ have passed the relevant examination for divers; and
- ◆ have a valid medical certificate.

The Diving School must submit an application for registration, stating that the learner diver has successfully completed his/her diving course at that approved facility. The results of the examinations, i.e. legal knowledge, diving theory and diving practical, must be displayed on the letter for each learner diver applying for registration as a diver.

An application form must be completed for each learner diver and also be submitted with the letter from the diving school. An example of the application form (Form D1) is attached to this document.

The following must accompany the application form, viz.

- ◆ A registration fee of R50, 00 must be paid in the form of an uncanceled revenue stamp. The stamp must be placed at the top right-hand corner on the application form;
- ◆ X 2 certified photographs (28 x 25 mm);
- ◆ Certified copy of birth certificate or Identification Book (ID); and
- ◆ Letter of confirmation from the diving school.

The Diving School will submit the applications to:

THE CHIEF DIRECTOR: OCCUPATIONAL HEALTH AND SAFETY
PRIVATE BAG X117
PRETORIA
0001

Once the Department of Labour has processed the applications, the certificates will be send back to the diving school, which will forward it to the diver concerned.

3.3.11. Registration Of Diving Supervisors

For each Class of diver there is a diving supervisor qualification.

In order to qualify to register as a diving supervisor, a registered diver must have gained some experience as a diver and attended a diving supervisor's course at an approved diving school.

The Diving School must submit an application for registration, stating that the diver has successfully completed his/her diving supervisor's course at that approved facility. The results of the examinations, i.e. legal knowledge, diving theory and diving practical, must be displayed on the letter for each diver applying for registration as a diving supervisor.

An application form must be completed for each prospective diving supervisor and must also be submitted with the letter from the diving school. An example of the application form (Form D1) is attached to this document.

The following must accompany the application form, viz.

- ◆ A registration fee of R50, 00 must be paid in the form of an uncanceled revenue stamp. The stamp must be placed at the top right-hand corner on the application form;
- ◆ X 2 certified photographs (28 x 25 mm);
- ◆ Certified copy of birth certificate or Identification Book (ID); and
- ◆ Letter of confirmation from the diving school.
- ◆ A copy of a valid medical certificate of fitness.
- ◆ A copy of his existing diving certification

The Diving School will submit the applications to:

THE CHIEF DIRECTOR: OCCUPATIONAL HEALTH AND SAFETY
PRIVATE BAG X117
PRETORIA
0001

Once the Department of Labour has processed the applications, the certificates will be sent back to the diving school, which will forward it to the diving supervisor concerned.

3.3.12. Lost, Destroyed, Damaged And Stolen Certificates

If a certificate is lost, destroyed, damaged or stolen, the holder thereof shall apply to the Department of Labour to be re-issued with a new certificate. The holder must make

contact with the nearest office of the Department of Labour to inform them of the situation.

The holder must re-submit the following, viz.

- ◆ A registration fee of R50, 00 must be paid in the form of an uncanceled revenue stamp. The stamp must be placed at the top right-hand corner on the application form;
- ◆ X 2 certified photographs (28 x 25 mm);
- ◆ Certified copy of birth certificate or Identification Book (ID);
- ◆ An affidavit signed by the S.A. Police Services, stating that the certificate was lost, destroyed, damaged or stolen; and
- ◆ An application form (form D1) can be obtained at the offices of the Department of Labour.

4. MEDICAL EXAMINATIONS AND CERTIFICATES OF FITNESS

It is a legal requirement that all prospective learner divers must be declared medically fit by a Designated Medical Practitioner to do a commercial diving course at an approved diving school. Regulation 4 of the Diving Regulations, 2001 provide the framework for these examinations. It is also a requirement that a diver must be medically in-date with his/her medical examination. A Designated Medical Practitioner must conduct this medical examination annually. In certain cases it would be necessary to refer a prospective learner diver or a diver to a specialist on request of a Designated Medical Practitioner.

“A Designated Medical Practitioner” means a registered medical practitioner designated in terms of the Diving Regulations, 2001 to establish whether divers are fit to dive. The medical practitioner also had to do a course in underwater medicine in order to qualify as a Designated Medical Practitioner and must be registered with the Health Professional Council of South Africa.

A medical certificate of fitness shall indicate the following:

- ◆ The name and identity number of the person to whom it relates;
- ◆ the date of the medical examination;
- ◆ the date of any X-ray photograph taken for the purpose of the examination;
- ◆ whether the person is considered fit to dive;
- ◆ any limitation on the diving or compression for which the person is considered fit;
- ◆ the period, not exceeding 12 months, for which the person is considered fit;

- ◆ the name, address, telephone number, Health Professional Council of South Africa registration number and the Department of Labour number of the designated medical practitioner issuing the certificate as well as the year in which he/she last attended a course in underwater medicine;
- ◆ the signature of the medical practitioner issuing the certificate.

The Designated Medical Practitioner must issue the prospective learner diver or a diver with a certificate and forward the examination results to the Chief Director: Occupational Health and Safety.

5. SUPERVISION OF DIVING OPERATIONS

A diving supervisor must personally take charge of a diving operation. Where an employer is a diving supervisor and he/she takes charge of the diving operation, he/she will then be responsible for the health and safety of the divers. If the employer is not a diving supervisor and operates a commercial diving business, he/she then must appoint in writing a registered diving supervisor to take charge of that diving operation. This must take place on the letterhead of the employer and must be available of inspection by an inspector on request.

Regulation 5 (2) of the Diving Regulations, 2001, mentions that an inspector may approve the designation of a diver to act as diving supervisor on request. This approval will only be granted in cases of emergency i.e. if a diving supervisor becomes ill whilst in charge of a diving operation and another diving supervisor is not available to take over the responsibility. It is not meant for divers to obtain diving supervisor status without doing a diving supervisor's course.

The regulations also states that a diving supervisor must do the following, viz.

- ◆ Regulation 5(3)(a): At all times be available to deal with emergencies at the site where diving operations are carried out

It is crucial that a diving supervisor is available at all times to deal with an emergency and that he/she must be at the site where the diving operation is taking place.

It is part of the responsibilities of the diving supervisor to do hazard identification and risk assessments and to also determine where the surface control point must be. It is ideal that the diving supervisor takes his/her position at the surface control point. If diving is done on surface supply diving equipment, then the diving supervisor should stand behind the surface control panel at the control point. The diving supervisor must be in a position to **manage** if something should go wrong. He/ she is responsible no one else.

- ◆ Regulation 5(3)(b): Not dive while he/she is supervising other divers

If one looks at the definition of a diver it means “*any person registered as a diver in accordance with the Diving Regulations, 2001 and includes a diving supervisor*”

Because the diving supervisor is also defined as a diver he cannot dive and supervise, he/she cannot wear two hats. He/she only has one responsibility and that is to supervise.

- ◆ Regulation 5(3)(c): if another diving supervisor is not available when he/she has to dive for purposes of inspection and planning, ensure that an experienced diver acts as diving supervisor for the duration of the dive.

The diving supervisor, being responsible for the health and safety of the divers, must perform various tasks. He/she might arrive at a dive site and it is necessary to do an underwater survey to determine the extent of the work that has to be performed. This might also include hazard identification and the conducting of a risk assessment, so that systems of work can be developed. It would then be the responsibility of the diving supervisor to appoint the most experienced diver to supervise that particular dive.

- ◆ Regulation 5(3)(d): not act as a standby diver unless another diving supervisor is available to take charge of the diving operation.

This is extremely important. No diving supervisor may act as standby diver. The duty of the diving supervisor is to manage, to take control in the normal sense and in cases of emergency. If the diving supervisor is in the water to carry out a rescue mission, who will take charge of the diving operation? What if he/she during this act also lands up in trouble?

GENERAL ISSUES:

Diving supervisors need to understand that once they receive their letters of appointment they are responsible and liable for what happens at that dive site. This is a legal appointment and the diving supervisor cannot discharge these duties to someone else. They must have a thorough knowledge of the Occupational Health and Safety Act, 1993 and Regulations in order to fully understand their responsibilities.

6. OPERATIONS MANUAL

Section 8 (2) of the Occupational Health and Safety Act, 1993, under the heading “General duties of employers to their employees”, it states that: *Without derogating from the employer’s responsibility to provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his/her employees, the employer must also consider the following, viz.*

That the employer must also provide of the provisions and maintenance of systems of work, plant and machinery that, as far as is reasonable, are safe and without risks to health.

It is clear from the above that it is the responsibility of the employer to draw up safe work procedures, but it does not prescribe how it should be done. Regulation 6 of the Diving Regulations, 2001, however prescribe to some extent, indicating the seriousness of proper working procedures in commercial diving. What it highlights, is that commercial diving, as a profession, is considered a high-risk occupation.

The operations manual is an important document and this regulation clearly spells out what must be catered for when drawing up this manual. Herewith some guidelines to that effect, viz.

- ◆ Regulation 6(1): An employer shall ensure that an operations manual is made available to each diving team at the dive location before commencement of the diving operation:

The reason for making this manual available to the dive team before the commencement of the diving operation is that the diving supervisor, along with his/her team of divers, can study the work procedure. This is important, as they need to find out what is expected of them and also to acquaint themselves with the contents thereof.

It must be realised that if the employer, diving supervisor and divers are in agreement that this is the way the diving operation should be conducted, it becomes a legal document. Every member of the dive team's actions will be measured according to this document.

The importance of a well-formulated operations manual cannot be overemphasised. It will eliminate the exposure of divers to risks and in cases of emergency, ensure that certain prescribed steps will be taken. These steps will be known to all on the dive team, thus eliminating irrational decision making, that can lead to an unfavourable situation.

- ◆ Regulation 6(2): An operations manual shall contain provisions for safety and health of employees including:

- ◆ the assignments and responsibilities of each diving team member for each diving mode used.

The assignments and responsibilities are of utmost importance in the health and safety management programme of a company. If the employer does not assign duties, he/she cannot keep the employees responsible if something goes wrong. The assignment of responsibilities must consist of specific instructions to the

employees, so that they will know exactly what the employer requires of them. In this instance, the regulation requires that it must be done in writing.

◆ Safety procedures and checklists for each diving mode used:

The safety procedures must consist of all the necessary techniques and related procedures in the use of specific diving equipment. In order for the employer to ensure that the necessary safety procedures are carried out, safety checklists must be drawn up. The diving supervisor must complete these safety checklists before diving work commences for that day and the signed checklist must be kept with the diving operations record for that particular diving operation.

In this manner, the employer can observe the actions of the diving supervisor and also have the assurance that the divers are diving with equipment that is in a good state of repair.

◆ Procedures and checklists for the use, checking and maintenance of equipment for each diving mode used:

These procedures and checklists must be drawn up for the specific equipment that the dive team will be using during their diving operation. These checklists must be completed by the diving supervisor and must be added to the diving operations record for that particular diving operation.

Taking into consideration when drawing up such procedures and checklists, that all reasonable steps must to be taken by the employer to ensure the divers will use the equipment in such a way, that it will not endanger their health and safety. By having these procedures and checklists, the employer will be assured that diving will be done in a proper manner and the system will be easily audited to ensure compliance.

Proper maintenance schedules must be put in place for the equipment, ensuring that it will be in a good state of repair at all times. The manual must spell out how the employer will go about implementing a maintenance schedule.

◆ Emergency procedures in case of:-

(i) Fire:

The employer must ensure that proper procedures are in place in the event of a fire. The diving supervisor must have no doubt of what his/her actions should be. The employer must also provide the necessary equipment to deal with such an emergency.

(ii) Equipment failure:

The employer must ensure that there is an emergency procedure for all diving equipment, in the event of failure. I.e. if the compressor, supplying air to the divers fail, there should be a back-up supply of air readily available. The operations manual must clearly stipulate these procedures so that all members of the dive team know it.

(iii) Adverse changes in environmental conditions:

The employer must provide guidelines to the diving team, as to what he/she considers to be dangerous and when diving operations must cease. The diving supervisor must be alert and constantly assess the environmental conditions.

● Procedures for:

(i) Emergency signalling:

The employer must first of all ensure that there is proper underwater communications system in place. This will apply to diving taking place on surface supplied diving equipment and on SCUBA. If diving on SCUBA, through –water communications (wireless) must be used, unless the diver is on a life-line. The employer must also make the emergency signalling procedures known to the diving team and they must familiarise themselves with it. It must be clearly stipulated in the operations manual so that there will be no doubt in the minds of the diving team in this regard.

(ii) Emergency assistance under water and on the surface:

The employer must stipulate the necessary procedures in the operations manual with regard to rendering of assistance to divers in need. This will entail that the employer must draw up a procedure that will cater, as far as is reasonable practicable, for the actions that must be taken by the diving supervisor to assist divers underwater as well as on the surface of the water. It might be necessary for the diving supervisor to do hazard identification and risk assessment, in order to determine if he/ she has the necessary equipment, personnel, etc. to render assistance if needed.

(iii) Decompression, including therapeutic recompression and decompression, and the availability of compression chambers for such purposes:

A compression chamber is a piece of equipment that is of vital importance for a diver in distress. If a diver suffers from decompression sickness then the only means of remedy is to recompress that diver in a compression chamber and to start with a treatment programme. If a diver has suffered an embolism a compression chamber might be his/her only means of relief and such injury can take place at any depth. Therefore the need for such a facility to be readily available in these circumstances is extremely important. For some diving

operations such a facility will be at the dive site, but for most of the diving taking place, this is not the case. Therefore special arrangements must be made. As an employer it is advisable to obtain a letter from an owner of such a facility, stipulating that he/she will make his/her facility available if the need arises. Sometimes diving will take place at irregular hours, so the employer must ensure that the compression chamber is and will remain available.

It is also suggested that addresses, telephone numbers and contact persons of the facilities are made known in the operations manual, so that in the event of an emergency, the necessary people can be contacted. This is to ensure that they will be ready for the diver when he/she arrives at the compression chamber facility for treatment.

(iv) First-aid:

It is a requirement that the diving supervisor must at least have a level III first-aid qualification. The necessary first-aid equipment must also be available, including oxygen. Note that the diving supervisor must be trained on how to apply oxygen in case of an emergency.

(v) Obtaining medical assistance with specific reference to the need for consultation with a designated medical practitioner if decompression sickness should occur:

The employer must make available the name/s, addresses and telephone number/s of designated medical practitioners in the immediate vicinity of the diving location, so that the diving supervisor will know whom to contact in case of emergency.

(vi) Calling for assistance from emergency services including advance liaison with those services where appropriate:

In order to prepare for any possible emergency, the employer should obtain the details of all the emergency services in the area of the dive location.

Some examples are:

- ◆ Metro rescue
- ◆ Fire Department
- ◆ S.A. Police Service's Waterwing
- ◆ N.S.R.I.
- ◆ Ambulance Services
- ◆ People with specialised equipment
- ◆ All the necessary radio signals must be available in the operations manual, telephone numbers and contact persons.

- ◆ If a Cellular phone is available, please supply the PIN number, in case the phone goes dead i.e. after being dropped, etc.

(vii) Emergency evacuation of the work site:

A written procedure must be in place for this.

(viii) The provisions of emergency supplies:

This will depend on the dive location, the remoteness, will depend on the level of attention the employer will have to give in this regard.

7. CONTROL OF DIVING OPERATIONS

A diving operation is defined in the Diving Regulations, 2001 as:- “ *Meaning all activities of a diving team in preparation for, during and after a dive*”.

This regulation emphasises the need for proper control even before the actual diving takes place. It is obvious that proper control should be obtained during a dive, but the regulation still highlights what an employer must do to ensure that proper control is exercised.

Prior to commencing diving operations an employer shall ensure that:-

- ◆ Hazard identification and risk assessment has been done, (refer to the definitions of danger, hazard, risk and safe in the Occupational Health and Safety Act, 1993, this must be read with Section 8 of the said Act).
- ◆ Proper assistance to divers is available and **must** be the primary concern of the employer. All the necessary personnel must be present to render assistance in case of an emergency and he/she must have the equipment to deal with those situations.
- ◆ A chamber facility is available.
- ◆ A diver **must** have all the necessary diving equipment to safeguard his/her health and safety.
- ◆ All equipment **must** be checked and tested before used.
- ◆ Bottom time, decompression schedules and techniques **must** be made known and understood by everyone.
- ◆ The diving team **must** be informed and trained regarding emergency procedures.
- ◆ Medical oxygen **must** be available at the dive site, irrespective of depth.

During the performance of diving operations an employer shall ensure that:-

- ◆ Good discipline **must** be maintained at all times.
- ◆ The personnel requirements as per Annexure D of the Diving Regulations, 2001 **must** be applied:

**ANNEXURE D
MINIMUM PERSONNEL REQUIREMENTS**

DEPT H RANG E	SCUBA AIR	SCUBA NITROX	HOOKAH/SCIENT IFIC, ARCH. & SHELLFISH ONLY	SURFACE-SUPPLIED AIR/ NITROX	SURFACE-SUPPLIED MIXED GAS	SATURATION DIVING
0 - 15m	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Dive supervisor (as defined)	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Dive supervisor (as defined)	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Dive supervisor (as defined)	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Dive supervisor (as defined)	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Dive supervisor (as defined) 1 x Gas technician	See last 2 pages for the list.
15 - 30m	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Dive supervisor	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Dive supervisor	NO DIVING ALLOWED	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Dive supervisor	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Dive supervisor 1 x Gas technician	
30 - 50m	2 x Diver (Buddied up) 1 x Line attendant 1 x Standby diver 1 x Dive supervisor	2 x Diver (Buddied up) 1 x Line attendant 1 x Standby diver 1 x Dive supervisor	NO DIVING ALLOWED	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Standby attendant 1 x Dive supervisor	1 x Diver 1 Line attendant 1 x Standby diver 1 x Standby attendant 1 x Dive supervisor 1 x Gas technician	
50 - 70m	NO DIVING ALLOWED	NO DIVING ALLOWED	NO DIVING ALLOWED	NO DIVING ALLOWED	1 x Diver 1 x Line attendant 1 x Standby diver 1 x Standby attendant 1 x Dive supervisor 1 x Gas technician	
70 - 100m	NO DIVING ALLOWED	NO DIVING ALLOWED	NO DIVING ALLOWED	NO DIVING ALLOWED	NO DIVING ALLOWED	1 x Diver 1 x Line attendant 2 x Standby diver 1 x Dive supervisor 1 x Gas technician 1 x Diver medic 2 x LST

MINIMUM SATURATION DIVING MANNING LEVELS FOR TWO DAYS

- 1 x Diving Supervisor
- 2 x Life Support Technicians
- 2 x Divers in saturation
- 1 x Standby Diver (Diver medical technician)
- 1 x Electrical Technician
- 1 x Mechanical Technician

FOUR DIVERS

- 2 x Diving Supervisor
- 2 x Life Support Technicians
- 4 x Divers in saturation
- 1 x Standby Diver (Diver medical technician)
- 1 x Electrical Technician
- 1 x Mechanical Technician

SIX DIVERS

2 x Diving Supervisor
2 x Life Support Technicians
4 x Divers in saturation
1 x Standby Diver (Diver medical technician)
1 x Mechanical Technician
1 x Electrical Technician

The above manning levels are the absolute minimum. Additional personnel will be required for increased saturation team size.

- ◆ The issue of standby divers is addressed in regulation 7(2) (b) of the Diving Regulations, 2001. The standby diver **must** be in a state of readiness to dive, provided that where two divers are in the water at the same time and near enough to each other and render assistance to each other in an emergency, the one may be deemed to be a standby diver for the other. Important to note is that the diving supervisor **must** do proper hazard identification and a risk assessment to determine if this is possible. If for example, there is no underwater visibility, it means that the divers cannot communicate, so the standby diver must be on the surface of the water at the control point.
- ◆ A person with a valid first-aid certificate **must** be present at the dive site at all times. A diving supervisor must at least be in possession of a valid level 3 first-aid certificate.
- ◆ The employer/diving supervisor **must** ensure that only "in-date divers" participate in diving operations. "In-date divers" are divers that are holders of valid medical certificates of fitness and who have not been laid off from diving for periods of six months or more. What is also important is the duration of underwater dive times. The dive times should be more than half an hour in duration. In other words, if a person only dived twice in a period of six months and both dives are less than half an hour in duration, the diver is considered to be out of date.
- ◆ Divers **must** at all times assess themselves as far as their physical and mental condition is concerned. If they feel that they are unfit to dive because of the afore-mentioned, they **must** inform the diving supervisor, and not participate in the diving operation. The diving supervisor **must** also assess divers for the same indispositions and not allow divers to dive if he/she is of the opinion that it will be unsafe.
- ◆ When diving on SCUBA lifelines, buddy-lines and surface markers **must** be used. If the diver and the diving supervisor consider the use thereof hazardous then they can do away with it. This means that a proper hazard identification and risk assessment **must** be done. If the diver cannot dive with the afore-mentioned, he/she **must** use a through-water (wireless) communication system, except in the case of a standby diver a lifeline shall be used.
- ◆ All voice communications **must** be recorded. This will be for all classes of diving, including SCUBA.
- ◆ When diving to certain depths the following **must** be remembered:

- ◆ 50 to 70 meters a diving stage must be used, unless a bell is provided;
- ◆ 70 to 100 meters a bell must be used, except when diving in a confined space, which makes the use thereof impractical; and
- ◆ > 100 meters a closed bell must be used.

(Note: where the regulation refers to a bell, it means an open or wet bell. Other than that the regulation will clearly stipulate "closed bell", which is used in class I diving).

- ◆ A diver may not dive to a greater depth than that for which his/her equipment is suited. Manufacturers and safety standards, incorporated into the Diving Regulations, 2001, place limits on the depth at which diving equipment may be used. The employer **must** keep up to date with these limits and comply with them.
- ◆ A sufficient supply of the appropriate breathing mixture **must** be available at the required pressure to provide for all the activities of a dive team for the duration of the diving operation, excluding a diver's bail-out cylinder. The employer **must** take all reasonable steps to ensure that the air supplied to the divers is pure and that it meets the requirements of SABS 019. This will require regular testing of air for impurities. Natural air may not be used to depths exceeding 50 meters, except for treatment purposes in a compression chamber.
- ◆ The keeping of a diving operations record, by the employer/supervisor **must** be done. The Diving Regulations, 2001, stipulate that the employer/supervisor must keep a record as per annexure B of the Regulation, which is as follow, viz.

DIVING OPERATIONS RECORD

- Name and address of the company/institution.
- Location, time and date of diving operations.
- Names of the diving supervisor, standby diver, diver and line attendant.
- Depth of dive.
- Time Left Surface per diver.
- Bottom time. per diver.
- Time arrive surface per diver.
- Approximate water temperature and thermal protection used.
- Environmental conditions (approximate sea state, underwater visibility and underwater currents).
- Decompression tables and schedule.
- Elapsed time since last pressure exposure if less than 24 hours or repetitive dive designation.
- Breathing mixture used and composition.
- Type of work performed.
- Type of diving equipment worn and used by diver/s
- Any unusual conditions, e.g. such as contaminated water.

Where a decompression sickness is suspected or symptoms are evident, the following additional information shall be recorded and maintained:

- Description of decompression sickness symptoms, including depth and time of onset.
 - Description and results of treatment.
- ◆ All this information **must** be recorded within 24 hours of completion of a diving operation. This document must be available for an inspector on request and be kept by the employer for two years.
- ◆ **Warning signals:**
- ◆ during the day flag A as defined in the international Code of Signals; and
 - ◆ by night, the lights as defined in the International Regulations for Preventing Collision at Sea, 1972 (as amended).

8. DECOMPRESSION

- ◆ Regulation 8 of the Diving Regulations, 2001 highlights the safety aspects in the use of compression chambers. The risk of fire is an ever-present concern and therefore certain precautionary measures **must** be taken.
- ◆ Suitable decompression tables **must** be used for procedures simulating an actual dive and for therapeutic recompression.
- ◆ Incidents involving decompression sickness and illnesses **must** be done in accordance with regulation 8 of the General Administrative Regulations, 1996.

9. COMPRESSION CHAMBERS AND BELLS

- ◆ The requirements for the above are listed in regulation 9 of the Diving Regulations, 2001. The Minister has incorporated various Health and Safety Standards into the Diving Regulations, under Section 44 of the Occupational Health and Safety Act, 1993. A list of all these Standards is available in the Regulations.

10. PLANT AND EQUIPMENT

- ◆ The employer **must** ensure that all diving equipment and machinery is maintained and properly used. The Act defines what is properly used, as follows: -*"used with reasonable care, and with due regard to any information or advice supplied by the designer, manufacturer, importer, seller or supplier."*

- ◆ The equipment necessary for safely entering and leaving the water **must** be available during diving. A hazard identification and risk assessment **must** be conducted in order to determine what equipment is needed.
- ◆ A compression chamber with all its additional equipment **must** be available for immediate use whenever diving takes place-
 - *At a depth exceeding 50 meters;*
 - *At a depth exceeding 10 m but not deeper than 50 m where the routine decompression time exceeds 20 minutes; and*
 - *At a depth exceeding 10 m but not deeper than 50 m where the routine decompression time is 20 minutes or less and no arrangements have been made to reach a chamber within 2 hours.*

NB : This two hours must not include air travel time.

11. ADDRESS LIST OF PROVINCIAL OFFICES

OFFICE	PROVINCE	DD: Business unit Heads	ADDRESS	TEL NO.	Fax no.	Prov.DIR.
Bloemfontein	Free State	Mr P Monnaruri (Pule) 082 730 0259	P O Box 522,9300	051 505 6203	051 447 9353	Mr R Ntuli (Richmond)
Durban	KwaZulu Natal	Ms N Moerane (Nokhana)	P O Box 940,4000	031 336 1500 031 336 1536	031 309 1666	Ms T Nene (Ms Thembi Nene)
George	Western Cape	Mr FL Nightingale (Leon)	P Bag X6454, 6530	044 801 1261/38	044 874 1746	(Falls under Cape Town)
Johannesburg	Gauteng South	Mr. T Tzana(Tibor)	P O Box 4560,2000	011 497 3243/ 3118	011 497 3142	Mr K Fick (Kenny)
Cape Town	Western Cape	Mr R vd Merwe (Rudelle)	P O Box 872,8000	021 460 5170	021 465 3642	Ms SP Zondeki (Siyanda)
Klerksdorp	North West	Mr I Jonathan (Isaac)	P O Box 461,2570	018 462 5560	018 462 7751/ 9781	(Falls under Mmabatho)
Mmabatho	North West	Mr S Kubheka (Stanley) 083 496 1509	P Bag X2040, 2735	0183874038/9	0183 84 2597	Mr PJ De Bruyn (Phillip)
East London	Eastern Cape	Mr L Matiwane (Livingstone)	P Bag X9005, 5200	043 701 3066	043 701 3066	Mr LM Nxawe (Lindile)

			5200		3066	
Pietersburg	Northern Province	Mr. Tladi	P Bag X9368, 0700	015 290 1641	015 290 1670	Ms P Maesela (Pinkie)
Port Elizabeth	Eastern Cape	Mr L Hansen (Laurie)	P Bag X6045, 6000	041 506 5000	041 523 588	(Falls under EC)
Pretoria	Gauteng North	Mr C Du Preez (Christo) 083 253 9186	P O Box 393,0001	012 309 5177	012 323 5449	Ms G Gumbi-Masilela (Gabi)
Witbank	Mpumalanga	Mr D Mabunda (Dumisani)	P Bag X7263, 1035	013 655 8798	013 655 8890	Mr P Mothiba (Phineas)
Kimberley	Northern Cape	Mr E Khambula (Edward)	P Bag X5012, 8300	053 838 1500	0	Mr DD Makanda (Dumile)