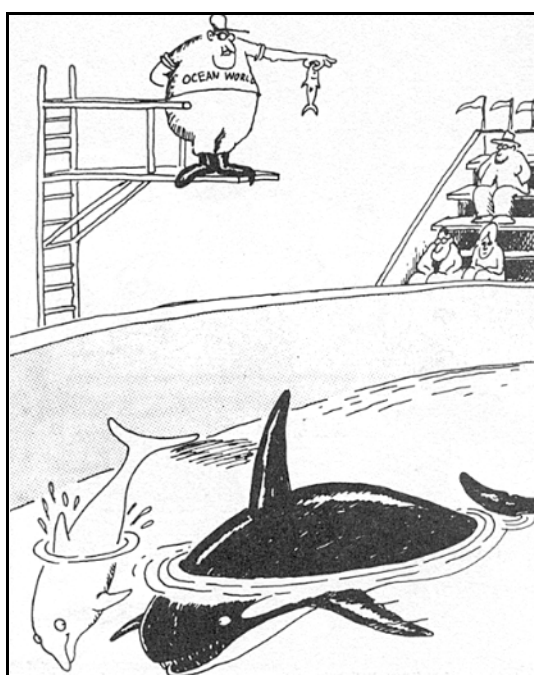


Section 2 — Occupational Health and Safety



"The herrings nothin'.....I'm going for the whole shmeer!"¹

¹ Copyright © The Far Side, Last Impressions, 2002, Larson. (Stolen and used without permission!)





CONTENTS

CONTENTS	2
CHAPTER 1 – INTRODUCTION	4
General.....	4
CHAPTER 2 – DUTY OF CARE.....	6
Introduction.....	6
CHAPTER 3 – REGULATORY AUTHORITIES AND ADVISORY BODIES	8
General Advisory Bodies	8
Contact Details for Regulatory Bodies	8
CHAPTER 4 – LAW AND GUIDANCE MATERIAL	11
Legislation.....	11
■ Occupational Health and Safety Acts.....	11
Common Law	11
Regulations and Approved Codes of Practice.....	12
■ Commonwealth Legislative Structure	12
■ Occupational Health and Safety Regulations.....	13
OHS Legislation Specific to Diving.....	14
Standards and Codes of Practice	15
■ Standards Specific to OHS.....	15
CHAPTER 5 – MANAGING OHS RISK	17
Risk Management Process	17
CHAPTER 6 – HAZARDOUS EVENTS.....	19
Types of Hazardous Events.....	19
■ Emergency	19
■ Fire or Flammable Gas Release	20
■ Accident	20
Control Measures	21
■ Appreciation or Situation Analysis.....	21
■ Emergency Procedures	22
■ Accident and Incident Investigation	23
CHAPTER 7 – HAZARDOUS GOODS AND EQUIPMENT	24
Hazardous Substances	24
Dangerous Goods	25



Plant Regulations	26
CHAPTER 8 – OHS RECORDS.....	27
CHAPTER 9 – EXAMPLES	29
Health and Safety Policy	29
■ Policy General Statement	29
Safety	30
■ Accident Causes	30
■ Accidents, Mishaps, Near Misses etc	31
Attitudes	31
■ Diving is a Dangerous Occupation	31
■ Responsible Attitudes	32
■ Behaviour.....	32
■ Performance	33
■ Personal Choices.....	33
■ Taking Chances	34
Divers Safety (Summary for Divers).....	35
CHAPTER 10 – SUMMARY	38



1

CHAPTER 1 – INTRODUCTION

GENERAL

ADAS COMPETENCY

Implement and monitor occupational health and safety programs.

Provide information to the workgroup about the organisation's occupational health and safety policies, procedures and programs.

Implement and monitor the organisation's procedures for identifying hazards, assessing risks and controlling risks.

Implement the organisation's procedures for dealing with hazardous events and equipment.

Implement and monitor the organisation's procedures for maintaining occupational health and safety records.

Occupational health and safety (OHS) is one of the most important issues facing a dive supervisor. The following extract from a Canadian report² says it all.

"Underwater work takes place in what can be one of the most hazardous and hostile environments. Lack of life supporting oxygen is only the most obvious hazard. Divers also routinely deal with high pressures, cold temperatures, and poor visibility. Currents, entrapment, and surface vessels are other hazards unique to the diving environment. It is not surprising, therefore, to find these hazards reflected in the fatality statistics for the diving industry. In Canada, in a work force of only a few thousand divers, there have been more than 50 occupational diving fatalities since 1975. This is about twenty times the rate in construction, one of the most hazardous land-based industries".

"Another way of comparing the hazards in diving with other industries is to look at the ratio of accidents (and near-accidents) to fatalities. On average, several hundred accidents occur in industry for every fatality or disabling injury. In diving, the ratio is about five to one. This is not to say that diving operations cannot be carried out safely, only that, in contrast to other work activities, there is almost no margin for error in diving. Procedures for the control of diving hazards are well known and the safety record of some sectors of the industry is exemplary. But when proper procedures and controls are not strictly adhered to, the result too often is the death of divers"

OHS is such a vital issue for any dive supervisor, that a separate workbook has been provided. There are activities, case studies and assessment tasks provided in the workbook, which help you to consolidate the knowledge and apply it in your workplace.



As a dive supervisor, you are expected to implement and monitor the organisation's occupational health and safety programs. This does not mean that you need to be an expert on the legislation. It does mean that you need to have an awareness of the general intent of the legislation. You will primarily need a thorough knowledge of the policies and procedures used in your organisation to keep the workplace safe and without risks to health.

This means that you will need to:

- ✓ provide information to the dive team about occupational health and safety policies, procedures and programs,
- ✓ implement and monitor procedures for identifying hazards, assessing risks and controlling risks,
- ✓ implement procedures for dealing with hazardous events and equipment,

² Sourced from <http://www.deeptech.com/cadc/hamon1.htm>, accessed May 2002, Canadian Association of Diving Contractors. Regulations for diving operations, Bulletin No. 4, Common provisions for diving operations, consultation document, 1996.



- ✓ implement and monitor procedures for maintaining occupational health and safety records.

In chapter 2, we will look at the concept of duty of care. Chapter 3 gives contact details for the relevant authority in each State or Territory of Australia and for New Zealand. In chapter 4, there is a summary of the legislative framework. These sections can be used as a basis for providing information to the dive team about the legal requirements for occupational health and safety.

Chapter 5 shows the general procedures for managing risk. Chapter 6 and 7 give an overview of dealing with hazardous events and equipment, and keeping records. Finally, there is an example of how OHS information can be provided to employees by including it in a company diving operations manual (or as part on the company's "Diving Safety Management System").



2

CHAPTER 2 – DUTY OF CARE

INTRODUCTION

Duty of care is the foundation of the occupational health and safety (OHS) legislation.

In New Zealand, Malaysia, (and in WA), the acronym OSH is used (Occupational Safety and Health), rather than OHS. For ease of reference, we have used OHS throughout the text in the workbook, except where specifically referring to New Zealand, Malaysia or WA.



General information on occupational health and safety in Australia can be obtained from the National Occupational Health and Safety Commission. Their website is at <http://www.nohsc.gov.au>. The following extracts outline the main principles of your OHS obligations.

“Each State and Territory has a principal OHS Act, which sets out requirements for ensuring that workplaces are safe and healthy. These requirements spell out the duties of different groups of people who play a role in workplace health and safety. These requirements are known as the Duty of Care.”

“Duty of care requires everything ‘reasonably practicable’ to be done to protect the health and safety of others at the workplace. This duty is placed on:

- ✓ all employers,
- ✓ their employee; and

any others who have an influence on the hazards in a workplace”. “Specific rights and duties logically flow from the duty of care. These include:

- ✓ provision and maintenance of safe plant and systems of work,
- ✓ safe systems of work in connection with plant and substances,
- ✓ a safe working environment and adequate welfare facilities,
- ✓ information and instruction on workplace hazards and supervision of employees in safe work,
- ✓ monitoring the health of their employees and related records keeping,
- ✓ employment of qualified persons to provide health and safety advice,
- ✓ nomination of a senior employer representative, and
- ✓ monitoring conditions at any workplace under their control and management.



These are representative of the employer's specific duties in all Australian States and Territories."

Source: Industry Commission, Work, Health and Safety, Report no 47, Sept 1995.

In summary, duty of care is a statutory responsibility to take reasonable care. It arose out of the original common law duty of care principle, which applies to every person who may be in a position of having a duty of care towards another.



3

CHAPTER 3 – REGULATORY AUTHORITIES AND ADVISORY BODIES

GENERAL ADVISORY BODIES



There are a number of advisory bodies that supply OHS information. These include:

- ✓ National Occupational Health and Safety Commission (Australia)
<http://www.nohsc.gov.au/>
- ✓ Regulatory authorities (see table below)
- ✓ Australian/New Zealand Standards (<http://www.standards.org.au>)
- ✓ Industry bodies (for example IMCA. <http://www.imca-int.com/>)
- ✓ Unions (for example, the Australian Council of Trade Unions Ph (03) 9664 7310, Fax (03) 9663 8220, e-mail ohs@actu.asn.au, website, <http://www.actu.asn.au/about/specialist/ohs>)

There is a wealth of information available for OHS.

Other useful contacts for Occupational Health and Safety information are given below.

This list is a guideline only. It may not be complete or up-to-date and may not show the latest information. It is your responsibility to ensure that you are using accurate and up-to-date information on occupational health and safety for a diving operation. Current information may be obtained from the relevant State or Territory authority given in the table below, or from one of the following sources.

CONTACT DETAILS FOR REGULATORY BODIES



NAME	ADDRESS	E-MAIL AND WEBSITE ADDRESS
NSW Workcover Authority	400 Kent Street Sydney, NSW 2000 Ph (02) 9370 5000 Ph 131 050 Fax (02) 9370 6150	E-mail contact@workcover.nsw.gov.au Website http://www.workcover.nsw.gov.au



NAME	ADDRESS	E-MAIL AND WEBSITE ADDRESS
Victorian Workcover Authority	Level 24, 222 Exhibition Street Melbourne, VIC 3000 Ph (03) 9641 1555 Toll free 1800 136 089 Fax (03) 9641 1222	E-mail info@workcover.vic.gov.au Website http://www.workcover.vic.gov.au
Worksafe Western Australia	3 rd Floor, 1260 Hay Street, West Perth, WA 6005 Ph (08) 9327 8777 Fax (08) 9321 8973	E-mail safety@worksafe.wa.gov.au Website http://safetyline.wa.gov.au
South Australian Workcover Authority	100 Waymouth Street Adelaide, SA 5000 Enquiries Ph 131 855 Ph (08) 8233 2222 Fax (08) 8233 2466	e-mail info@workcover.com website http://www.workcover.com
Queensland Division of Workplace Health and Safety	Level 3, 75 William Street Brisbane, QLD 4000 Ph 1300 369 915 Fax (07) 3247 4519 Workcover: Ph 1300 362 128 Fax (07) 3006 6400	e-mail safetyinfo@dir.qld.gov.au website http://www.dir.qld.gov.au http://www.detir.qld.gov.au http://www.workcover.qld.gov.au
Workplace Standards Tasmania	30 Gordons Hill Road Rosny Park, TAS 7018 Ph 1300 366 322 Fax (03) 6233 7657	E-mail info@wsa.tas.gov.au Website http://www.wsa.tas.gov.au
Northern Territory Work Health Authority	Ph 1800 019 115 Ph (08) 8999 5010	E-mail wha@nt.gov.au Website http://www.nt.gov.au/wha
ACT Workcover	Level 3, FAI House 197 London Circuit Canberra City, ACT 2601 Ph (02) 6205 0200 Fax (02) 6205 0797	E-mail workcover@act.gov.au Website http://www.workcover.act.gov.au



NAME	ADDRESS	E-MAIL AND WEBSITE ADDRESS
Comcare Australia	Ph 1800 642 770	E-mail ohs.help@comcare.gov.au Website http://www.comcare.gov.au
Department of Labour Centre for National Support	4 th Floor Unisys House 62 The Terrace Wellington New Zealand Phone (04) 915 4444 Fax (04) 499 0891	http://www.osh.dol.govt.nz/



4

CHAPTER 4 – LAW AND GUIDANCE MATERIAL

LEGISLATION

Legislation is made up of Acts and associated Regulations.

The following are the principal Acts governing the health and safety of employees in the workplace in each of the Australian States and Territories and New Zealand.

■ OCCUPATIONAL HEALTH AND SAFETY ACTS



Commonwealth	Occupational Health and Safety (Commonwealth Employment) Act 1991
ACT	Occupational Health and Safety Act 1989
Northern Territory	Work Health Act 1986
NSW	Occupational Health and Safety Act 2000
Queensland	Workplace Health and Safety Act 1995
SA	Occupational Health, Safety and Welfare Act 1986
Tasmania	Workplace Health and Safety Act 1995
Victoria	Occupational Health and Safety Act 1985
Western Australia	Occupational Safety and Health Act 1984
New Zealand	Health and Safety in Employment Act 1992
Malaysia	Malaysia Occupational Safety and Health Act 1994

COMMON LAW



In addition to legislation or statute law, there is another body of law called common law. This is law set by decisions in courts arising from civil actions.

Statute law overrides common law. Generally, workers compensation law is intended to remove the need for civil action for injured workers. In some cases, however, civil action may still be initiated.

In New Zealand, however, accident compensation legislation rules out such actions for personal injury in the majority of situations. This arises out of the “no-fault” system of accident compensation introduced by statute in 1974.



In Victoria, the common law right for an employee to sue an employer for injury sustained at work was removed between 1997 and 1999 in an attempt to keep spiralling compensation payouts under control. It was reinstated on 20 October 1999. There is a fact sheet explaining the changes on the Victorian Workcover Authority website (also available from their offices) **Common Law Restored - Explaining Common Law** (accessed August 2002). There is another fact sheet showing the common law process in flow chart form. Common law process - flow chart

REGULATIONS AND APPROVED CODES OF PRACTICE



There are a number of regulations and approved codes of practice associated with the OHS Acts.

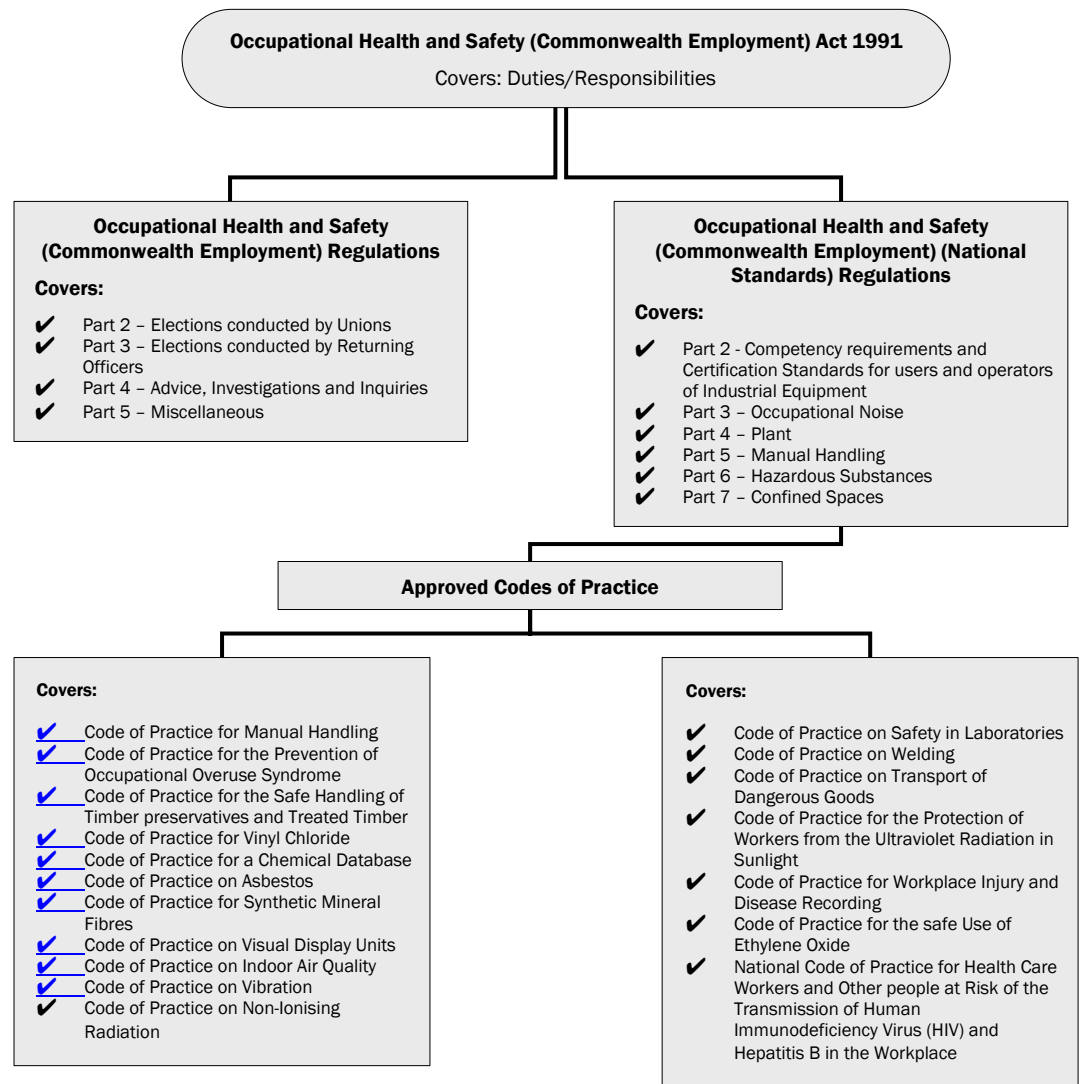


Table: The legislative structure applicable to Commonwealth employers and is similar to the legislative structure in the States and Territories and in New Zealand.

COMMONWEALTH LEGISLATIVE STRUCTURE

A current list of the regulations applicable to occupational health and safety can be obtained from the relevant authority.



The following information on some of the relevant OHS regulations applicable in Australia and New Zealand was obtained from the relevant regulatory authority in August 2002. You are responsible for obtaining the most up to date information from your local authority. The lists are intended to give you guidance as to the type of regulations that may apply to you. Note that there may be other regulations applicable to your workplace that are not included in the list.

■ OCCUPATIONAL HEALTH AND SAFETY REGULATIONS



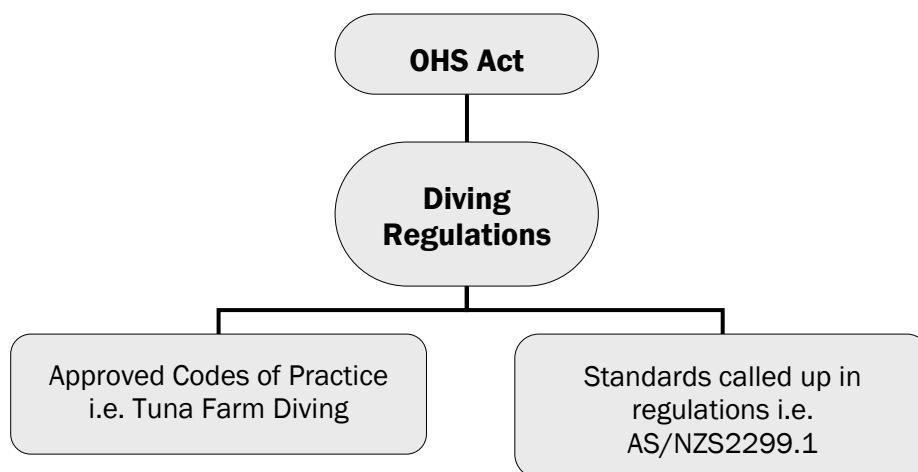
Commonwealth	The Occupational Health & Safety (Commonwealth Employment) (National Standards) Regulations 1994 Occupational Health & Safety (Commonwealth Employment) Regulations 1991
ACT	Occupational Health and Safety Regulations 1991 Occupational Health and Safety (Manual handling) Regulations 1997 Occupational Health and Safety (Certification of Plant Users and Operators) Regulations 2000 Dangerous Goods Regulations 1978
Northern Territory	Work Health Regulations Work Health (Occupational Health and Safety) Regulations Dangerous Goods Regulations
NSW	Occupational Health and Safety Regulation 2001
Queensland	Workplace Health and Safety Regulation 1997 Workplace Health and Safety (Miscellaneous) Regulation 1995
Tasmania	Workplace Health and Safety Regulations 1998
SA	Occupational Health, Safety and Welfare Regulations 1995
Victoria	Dangerous Goods (Explosives) Regulations 2000 Dangerous Goods (Storage and Handling) Regulations 2000 Dangerous Goods (Transport by Rail) Regulations 1998 Occupational Health and Safety (Asbestos) Regulations 1992 Occupational Health and Safety (Certification of Plant Users and Operators) Regulations 1994 Occupational Health and Safety (Confined Spaces) Regulations 1996 (S.R. No. 148/1996) Occupational Health and Safety (Hazardous Substances) Regulations 1999 Occupational Health and Safety (Incident Notification) Regulations 1997 Occupational Health and Safety (Issue Resolution) Regulations 1999 Occupational Health and Safety (Major Hazard Facilities) Regulations 2000 Occupational Health and Safety (Manual Handling) Regulations 1999



	Occupational Health and Safety (Noise) Regulations 1992 Occupational Health and Safety (Plant) Regulations 1995 Occupational Health and Safety (Lead) Regulations 2000
Western Australia	Occupational Safety and Health Regulations 1996
New Zealand	Health and Safety in Employment Regulations 1995 Health and Safety in Employment (Prescribed Matters) Regulations 1993 Dangerous Goods Regulations 1958 Dangerous Goods Regulations 1980 Dangerous Goods (Licensing Fees) Regulations 1976 Dangerous Goods (Labeling) Regulations 1978 Dangerous Goods (Class 2 - Gases) Regulations 1980 Dangerous Goods (Class 3 - Flammable Liquids) Regulations 1989 Dangerous Goods (Class 4 - Flammable Solids and Substances) and (Class 5 - Oxidising Substances) Regulations 1989 Explosives Regulations 1959 Pressure Equipment, Cranes, and Passenger Ropeways Regulations 1999

OHS LEGISLATION SPECIFIC TO DIVING

For diving, the legislative structure relating to OHS can be shown graphically as follows.



An approved code of practice is developed to be used with the Act or Regulations and is approved by the Minister. A company should comply with an approved code of practice, unless it can be shown that the method of work used achieves the same or a better standard of health and safety for the employees. An approved code of practice does not have any legal force, in that a company cannot be prosecuted for failing to comply. However, it may be used as evidence in a court of law if an action is taken against a company for failing to comply with the Act or Regulations.





The law throughout most of Australia specifically requires that diving carried out in connection with underwater construction work must comply with the requirements of AS/NZS 2299.1:1999 Occupational diving operations, Part 1: Standard operational practice.

AS/NZS 2299.1 details specific requirements as to the qualifications, training and duties of the diving supervisor. In particular, AS/NZS 2299.1 states that the dive supervisor shall be responsible for the safe conduct of diving operations. It requires dive supervisors to ensure that all diving operations under their supervision are carried out in accordance with the Standard and requires them to be familiar with any legislative requirements, which may be applicable to the diving operations.

In Victoria, although there is no legal requirement specific to diving, there are the normal requirements for employers to provide adequate supervision, and the Victorian Workcover Authority as a matter of policy requires compliance with AS/NZS 2299.1. Tasmania and the ACT also have no specific legal requirements for occupational diving, except by inference through the occupational health and safety legislation.

Additionally, South Australia requires compliance with AS/NZS 2299.1 through its Approved Code of Practice for Tuna Farm Diving. In Queensland, the Workplace Health and Safety Regulation (Section 81) specifically stipulates that construction diving work can only be undertaken if a qualified Diving Supervisor is appointed for the work.

STANDARDS AND CODES OF PRACTICE

In addition to Regulations, Approved Codes of Practice and the Standards referred to in the Regulations, there are a number of other Standards and guidelines, which can be utilised to improve the general OHS system.

Neither Standards, nor Codes of Practice are legal obligations³, except where referred to specifically in legislation. Nevertheless, they are excellent tools for assisting in setting up a system to ensure that the employer's duty of care obligations is met.



For diving, in most Australian States, the diving Standard AS/NZS 2299.1 is called up in the regulations. This has some specific sections related to OHS. These are primarily: Section 7: Accident Reporting and Appendix D: Hazard identification, risk assessment and control (informative), although there are further references to safe operations practice throughout the Standard.

The following Standards are specific to OHS. There are other relevant Standards, which are listed in the first chapter.

STANDARDS SPECIFIC TO OHS

AS/NZS NUMBER	STANDARD TITLE
4801	Occupational Health and Safety Management Systems – Specification with Guidance for Use
4804	Occupational Health and Safety Management Systems – General

³ Some States (for example South Australia) have Approved Codes of Practice, which have special legal status under the law (ref S63 of SA OHS&W Act 1986). Where it is proved that a person failed to comply with a provision of a relevant ACOP, the person shall be taken to have failed to exercise the required standard of care in absence of proof to the contrary. An ACOP provides practical guidance; should be followed unless there is another solution, which achieves the same or better standard of health and safety; and can be used to support prosecution (Foreword of the SA Code of Practice for Tuna Farm Diving).



AS/NZS NUMBER	STANDARD TITLE
	Guidelines on Principles, Systems and Supporting Techniques
1885	Measurement of occupational health and safety performance
1885.1	Part 1: Describing and reporting occupational injuries and disease (known as the National Standard for workplace injury and disease recording)



5

CHAPTER 5 – MANAGING OHS RISK

Your primary OHS responsibility as a dive supervisor is to implement and monitor the OHS system as it applies to planning and conducting dive operations. At the heart of the OHS system is the OHS risk management process.

RISK MANAGEMENT PROCESS

OHS risk management involves:

- ✓ Identifying the hazard
- ✓ Assessing the risk
- ✓ Controlling the risk
- ✓ Communication and consultation
- ✓ Monitoring and review

Managing the risk associated with occupational health and safety is required by the OHS legislation. The diving Standard AS/NZS 2299.1:1999 also requires under Clause 3.1.1 that a

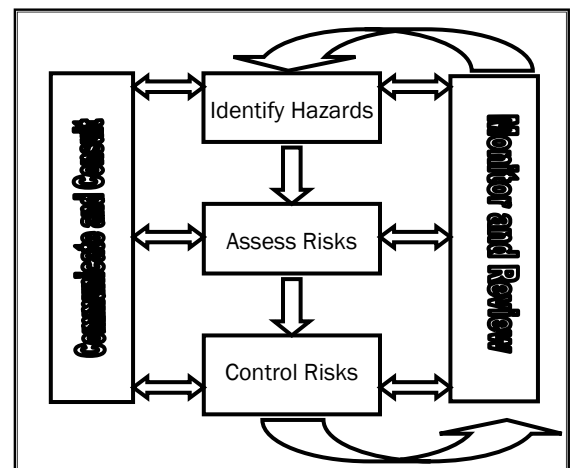
diving operation only be carried out after hazards have been identified, their associated risks assessed by a competent person and suitable measures to control risks have been determined and implemented (Source AS/NZS 2299.1:1999, Clause 3.1.1, p 13).

It is important to consider risks to both health and safety. It is common to focus on the immediate safety issues, and neglect the long-term health issues. Safety is generally associated with an immediate physical hazard – for example, loss of breathing air supply, currents, or entrapment. Health issues often relate to less obvious hazards, such as psychological stress.

The various OHS Acts require consultation and cooperation, monitoring and review. This means that you will need to talk to your team, obtain their assistance in identifying hazards, discuss the risk and come to an agreement on the assessment of the risk. Sometimes this requires outside expertise if there is not enough knowledge within the group of the level of risk associated with a particular task or site. Finally, everyone needs to be comfortable with the methods selected to control the risks. Under OHS legislation, no one is required to work in a situation where they feel the risks are unacceptable, and they do not believe it is safe.

If you are confident that the risks have been assessed appropriately by someone who is competent to assess them, part of your job includes communicating this to your team. If they are not convinced, you need to provide them with further information to assist them to understand the risks and to come to an agreement on the appropriate risk control.

Risk management is such an important component of the dive supervisor's job, that we have



devoted an entire chapter to managing risk. In section 5, we look at OHS risk, along with other types of risk.



6

CHAPTER 6 – HAZARDOUS EVENTS

Under AS/NZS 2299.1, there is a requirement for dive supervisors to be trained in the recognition and management of diving emergencies. The dive supervisor is also responsible for managing any other hazardous events that may occur in the dive operation.

TYPES OF HAZARDOUS EVENTS

Hazardous events may include accidents; fires and explosions, emergencies such as chemical spills, bomb scares and violent incidents for example, armed robberies.

Dealing with hazardous events includes considering things such as emergency communications, links to emergency services, fire fighting, chemical spill containment, bomb alerts and first aid services.

Broadly speaking, hazardous events can be one, or a combination, of the following:



- ✓ emergency (dangerous situation before loss of life or damage to property),
- ✓ fire or flammable gas release,
- ✓ accident (harm has already occurred), and
- ✓ intentional harm.

■ EMERGENCY

An emergency is:

- ✓ “An unplanned occurrence that requires some decisive, remedial action to be taken, to avoid injury or damage”.
- ✓ “A sudden state of danger”.

In short, it is a dangerous state when decisions have to be made quickly. An emergency may involve a fire and/or an accident.

The three main steps in dealing with an emergency are:



- ✓ raise the alarm,
- ✓ protect life, and
- ✓ limit the impact or spread.

Some examples of possible diving emergencies facing the dive supervisor are:

- ✓ diver unconscious underwater,



- ✓ loss of air supply,
- ✓ trapped or tangled diver,
- ✓ surface crew incapacitated,
- ✓ injured or sick diver,
- ✓ lost diver,
- ✓ person overboard,
- ✓ uncontrolled breathing or panic, and
- ✓ omitted decompression.

We will look at some of these further in the chapter on conducting dive operations.

■ FIRE OR FLAMMABLE GAS RELEASE



Fire is a risk with potentially serious consequences in any workplace, with some added challenges at a dive site. If working from a boat, evacuation in the event of fire is not as straightforward as on land, needs to be carefully planned and regular drills undertaken.

Other fire risks include the risk of fire in a chamber. If this occurs, occupants of the chamber will be at risk both from the fire and from toxic fumes from burning materials. If a flash fire occurs, it is likely to be fatal for any occupant.

The risk of fire in a chamber depends on the oxygen percentage. When the oxygen percentage is 21% or above, in an air chamber or in a saturation chamber in the closing stages of a decompression, ignition will occur easily. Below 8% fire will not start, most of the time in saturation the oxygen percentage is below this level. It is generally only in decompression that there is a risk. In air chambers however, there is always at least 21% oxygen and it may be higher if oxygen is being used in decompression. Above 23-24%, the fire risk becomes extreme. Care must be taken to ensure that no inflammable substances, matches or lighters should go into a chamber. Newspapers, books and rubbish are also flammable and should not be allowed when the oxygen percentage reaches or exceeds 21%. (Source: adapted from The Diving Supervisor's Manual, Association of Offshore Diving Contractors and the Underwater Centre, 1986, Section 9-9).

Oxygen facilities always carry a risk of fire. Any work involving the use of pure oxygen must be carefully controlled to avoid fire risks.

■ ACCIDENT

Accidents are events that result in death, injury, illness or property damage. In addition to diving illnesses or emergencies, it is important to consider the types of accidents that may occur on the surface. The most common types of accidents resulting in worker's compensation claims involve:

- ✓ manual handling,
- ✓ stepping on, striking against or being struck by objects, and
- ✓ slips, trips, falls and jumps by persons.



First aid training for dive teams is a requirement of AS/NZS 2299.1:1999. The dive supervisor, divers and attendants need to be able to control bleeding, administer 100% oxygen, care for an unconscious patient and carry out cardiopulmonary resuscitation (CPR). A



dive supervisor also needs to be trained in the first aid management of diving related medical problems, and communicating findings to medical support.

CONTROL MEASURES

Diving is an inherently risky activity and documented emergency procedures are a vital component of any dive operation. In addition to diving medical emergencies, there are also general emergency procedures that the dive supervisor may be responsible for implementing.

A good OHS system should prevent accidents. However, it is an unfortunate fact that accidents and incidents do still occur. If this happens, management needs to investigate the cause and take steps to prevent the accident or incident occurring again. Accident and incident investigations are an important means of improving the OHS system.

As dive supervisor, you will be responsible for:



- ✓ implementing procedures for dealing with hazardous events,
- ✓ investigating hazardous events to identify their cause, and
- ✓ implementing control measures to prevent recurrence or minimise risk.

Control measures to prevent occurrence and minimise risks of hazardous events are generally specified in the operations manual of the diving organisation.

As supervisor, you will be directly responsible for the control measures involving training, procedures for prevention, and procedures and equipment for dealing with a hazardous event if it does occur.

■ APPRECIATION OR SITUATION ANALYSIS

Another vital skill in minimising the occurrence and the risks of hazardous events is to be able to perform an “appreciation” or “situation analysis”. An appreciation is a mental process that assists in selecting the best way to do a job in an emergency. The steps in an appreciation are to:



- ✓ determine the aim,
- ✓ examine the relevant factors,
- ✓ determine courses open,
- ✓ select the best course of action, and
- ✓ formulate the plan.

The plan should be checked to ensure that the reasoning is sound and realistic, it is set out in a logical order, everything in it is relevant to the problem, it is free from uncertainties and ambiguities, it is accurate, and the aim can be achieved with that plan. If any factors change, you will need to re-assess the plan.

Ideally, this appreciation process is carried out well in advance of any emergencies. It should be done in developing the emergency procedures for the Diving Operations Manual as well as during the dive planning stage of an individual dive operation.

It will inevitably also need to be done under pressure in the midst of a hazardous event. In most cases, this will be a very simple appreciation process based on selecting the appropriate pre-prepared emergency procedure to put into place. However, in some cases, the emergency



may be unforeseen, or sufficiently complex that it requires a difficult judgement by the supervisor. Thorough training and practice with hypothetical scenarios is an excellent method of preparing for such a situation.

We will look at the appreciation process in a little more detail in the section on conducting dive operations.

■ EMERGENCY PROCEDURES



The nature of an emergency is that there is very little time to make decisions on what needs to be done. For this reason, standard emergency procedures and contingency planning are vital for protecting life and limiting the impact or spread of the hazardous event.

A hazardous event requires people to know what they have to do and have the ability to act quickly. Emergency drills are the best way to develop and reinforce this ability and are most effective if carried out on a regular basis with variations in the scenarios to allow practice of a range of required responses.

AS/NZS2299.1:1999 specifies that a diving operations manual shall have emergency response plans (Clause 3.1.2 (d) p 13).

A dive plan also needs to have specific emergency procedures (Clause 3.1.3 (e) p 13).

Appendix E5 (informative) gives guidance on the generic emergency plans that should be included in the diving operations manual.

As well as diving illnesses and medical emergencies, the dive supervisor is likely to be responsible for implementing a range of other emergency procedures. These might include⁴:



- ✓ evacuation in the event of fire or hazardous substance release,
- ✓ managing a multi-casualty event such as casualties resulting from explosion,
- ✓ injured diver retrieval or recovery,
- ✓ diver evacuation,
- ✓ emergency communications,
- ✓ liaison with emergency services,
- ✓ first aid and medical assistance,
- ✓ decompression and recompression,
- ✓ evacuation of platform or vessel,
- ✓ roles and responsibilities of staff, and
- ✓ refresher training for staff in managing emergencies.

A thorough knowledge of the procedures is essential. It is also important to make sure that these are updated regularly and that you have the latest version of the procedures. A wrong telephone number in the middle of an emergency wastes precious time.

⁴ Adapted from AS/NZS 2299.1:1999 Appendix E5, page 55.





■ ACCIDENT AND INCIDENT INVESTIGATION

All accidents and incidents, no matter how minor, should be recorded and reported to management. The law requires reporting of certain accidents and incidents to the relevant authorities. This generally involves accidents that cause serious bodily injury, work-caused illness, fatality, or a dangerous occurrence that could have caused such injury or illness.

In the event of an accident, it is important to find out whether it was caused by not following the procedures, or whether the procedures were not adequate.

If the procedures are inadequate, they must be revised and personnel retrained in the new procedures.

Even if you are not directly responsible for the investigation as a dive supervisor, it is likely that you will be responsible for preserving the accident site and providing input into the investigation. The legislation often specifies these requirements. In addition, AS/NZS 2299.1:1999 gives guidance on investigation of accidents and incidents in Clause 7.2, page 43.

The dive supervisor is generally responsible for preserving the accident scene pending investigation. Some key points are to seal any equipment likely or suspected to have caused a serious accident. In any case where a fatality has occurred, equipment should be left in the condition that it was in at the time of the accident until it has been investigated by the relevant authorities (except for the breathing gas supply which should be isolated to retain the remaining gas. The number of turns, any undue force or other actions required to isolate the gas supply should be noted and recorded). (Source: adapted from AS/NZS 2299.1:1999, s 7.2, page 43).

In general, the role of the supervisor is to:



- ✓ Take notes and written details (Names and addresses, victims, witnesses; Dive sheets, logbooks; any relevant medical records etc.).
- ✓ Assist with investigations.
- ✓ Compile internal company report (Workplace Injury reporting is covered in standard AS 1885.1; accident report in Procedures Manual).
- ✓ Conduct debrief (Critical incident debrief).
- ✓ Assist with welfare of injured party (and witnesses).



7

CHAPTER 7 – HAZARDOUS GOODS AND EQUIPMENT

You are likely to be responsible for handling and storing hazardous goods and equipment in accordance with procedures and regulations.



There are specific regulations for storing and handling hazardous goods and equipment. The regulations differentiate between hazardous substances and dangerous goods, although many dangerous goods are also hazardous substances. Your organisation should have procedures that comply with these regulations.

For further information, contact your local regulatory authority.

HAZARDOUS SUBSTANCES

Many chemicals and other substances used or produced in the workplace can be hazardous to your health. This exposure can lead to cancers, other diseases and the skin condition known as “dermatitis”. It is estimated that there are 2,200 deaths in Australia each year due to past occupational exposures to hazardous substances, including asbestos.

Hazardous substances are chemicals and other substances that can affect your health, causing illness or disease. They may be solvents, pesticides, paints, adhesives, petroleum products, heavy metals or any other substance that is hazardous to health and is used or produced at work. Hazardous substances can take many forms - liquids, solids, vapours, gases, fumes or dusts. Examples at the dive site may be the cleaning or disinfecting solutions used, or carbon monoxide contamination of breathing gases.

Australian occupational health and safety laws require that exposure to hazardous substances is kept below levels at which health effects are known to occur. These laws require workplaces to make sure everyone knows:



- ✓ what hazardous substances are being used,
- ✓ what effects they can have on your health, and
- ✓ what has to be done to prevent or minimise exposure to hazardous substances.

Your employer must make the Material Safety Data Sheet (MSDS) for a hazardous substance readily accessible to you and ensure there is a hazardous substance register (a list of all the hazardous substances used or produced at the workplace together with the MSDSs for those substances).

The easiest way to determine if a substance is hazardous is to look on the label for the words “hazardous”, “warning”, “poison”, “dangerous poison”, “harmful”, “corrosive”, or other advice about specific health effects.

It is more complicated to determine whether a substance is hazardous if you do not know



what it is! This might occur if you are diving at a contaminated site. In these instances, you may need to conduct tests on the substance. If this is not possible, you **MUST** assume that it is hazardous and take the necessary precautions – e.g. drysuits for the dive, and showers and disinfecting equipment when concluding the dive.

As dive supervisor, you may need to assess likely exposure to hazardous substances at the dive site. In order to do this you must:



- ✓ identify hazardous substances - look at the label or conduct tests,
- ✓ review information about hazardous substances - read the MSDSs and make sure all instructions are being followed,
- ✓ identify any risks of exposure - take into account factors such as how often exposure occurs, for how long and at what level - it may be necessary to get a professional to measure the air concentration of hazardous substances.

You will need to select control measures, using the hierarchy of controls as a guide. For example:

✓ **Elimination**

Removal of a hazardous substance, which is not essential - for example, cleaning by the use of ultra-sound instead of with a chemical solvent.



✓ **Substitution**

Using a less hazardous substance, or a less hazardous form or process - for example using a disinfectant that is less irritating to eyes or skin, such as MEDIS for cleaning helmets. Some people make the mistake that it is safe to use a common household substance. This is not always correct. For example DETTOL, which is a well-known household disinfectant for use on the skin, should not be used to clean helmets. The concentrations required to achieve a disinfecting effect in helmets can cause irritation to the eyes and skin. It can also degrade the silicon and rubber components of the helmet.

✓ **Engineering controls**

This might include keeping a hazardous substance in a container that only administers a controlled dose.

✓ **Administrative controls and personal protective equipment**

For example, make sure that the person using the disinfectant is trained and competent in its use. Again, because of the familiarity of household disinfectants, people may not take the hazards seriously. Disinfectants used for cleaning equipment need to be diluted appropriately and the right personal protective equipment such as gloves and safety glasses used.

People should be trained in the handling of hazardous substances. There should be clear instructions, labelling and signage, as well as appropriate personal protective equipment available for use. In the event of an accident when using a hazardous substance, there must be well understood procedures for dealing with hazardous substance release or contamination. Eyewashes, emergency showers and breathing apparatus are all examples of emergency equipment for dealing with contact with hazardous substances.

DANGEROUS GOODS

Dangerous goods are defined by the United Nations and include chemicals and articles such as petrol, kerosene, LP gas, paints, pesticides, acids and alkalies. If stored or handled



improperly they can, and have, caused deaths, severe injury and damage to property and the environment.

There is a National Standard and a National Code of Practice for the Storage and Handling of Workplace Dangerous Goods. These can be found at the following website (or if the link does not work, go to the site for the National Occupational Health and Safety Commission <http://www.nohsc.gov.au> and search for them on the site).

NATIONAL STANDARD FOR THE STORAGE AND HANDLING OF WORKPLACE DANGEROUS GOODS

- ✓ http://www.nohsc.gov.au/pdf/standards/NOHSC-1015-2001_STANDARD.pdf

NATIONAL CODE OF PRACTICE FOR THE STORAGE AND HANDLING OF WORKPLACE DANGEROUS GOODS

- ✓ http://www.nohsc.gov.au/pdf/standards/NOHSC-2017-2001_COP_pt01.pdf
- ✓ http://www.nohsc.gov.au/pdf/standards/NOHSC-2017-2001_COP_pt02.pdf



PLANT REGULATIONS

Plant includes all machinery and equipment (including scaffolding), both stationary and mobile, tools and implements used in the workplace.

Plant that is regulated under health and safety legislation does not just include heavy industrial plant used in manufacturing and construction environments. It also includes plant used for entertainment such as amusement park rides, medical equipment, and office machinery and equipment such as photocopiers and paper guillotines.

It would be rare to find a business where health and safety plant regulations do not apply.

These should be included in the procedures for the organisation. The steps to complying with the plant regulations are to:

- ✓ list all the plant and equipment you have in your workplace,
- ✓ determine if any of this plant or equipment requires registering/certification or licensing of operators by government health and safety authorities,
- ✓ identify if the plant has the potential to cause injury to people,
- ✓ document what controls are already in place such as warning guards and devices,
- ✓ conduct plant risk assessments in consultation with employees, and
- ✓ determine controls such as redesign to eliminate the hazard and document controls such as a safe work procedure regarding the operation of that plant.



8

CHAPTER 8 – OHS RECORDS

OHS records are essential as both a legal requirement and as a way of improving the OHS system. You can use information from the OHS records to identify hazards and monitor risk control procedures.

You are required to complete occupational health and safety records for your work area accurately and legibly in accordance with your organisation's requirements and any legal requirements.

Dive supervisors have substantial reporting requirements including diving operations logbooks, chamber logbooks, reports to management or the client, various checklists, certification and maintenance records, and accidents, incidents and near misses. Many of these reports and records are related to health and safety. Some of these are specified in OHS legislation, such as:

- ✓ accident reports,
- ✓ incident, near miss, dangerous occurrence or dangerous event reports (the wording varies according to the applicable legislation, but the intent is the same – to report any incidents that had the potential to cause an accident to allow steps to be taken to avoid the incident happening again), and
- ✓ risk assessment records.



Others are referred to in the legislation by reference to AS/NZS 2299.1 as a requirement for diving operations. Records related to health and safety in AS/NZS 2299.1 includes:

- ✓ dive plan (which shall be retained for seven years – AS2299.1:1999, s3.1.3, page. 13),
- ✓ the risk assessment process showing details of hazard identification, risk assessment, risk control and monitoring,
- ✓ contingency plans for diving emergencies,
- ✓ records of medical examinations for divers,
- ✓ records of dive for each diver,
- ✓ permanent record of diving for each diver (logbook including summary of accidents or incidents), and
- ✓ employer's record of dive.



AS/NZS2299.1 also draws attention to the standard AS1885.1 Measurement of Occupational Health and Safety Performance: Part 1: Describing and Reporting Occupational Injuries and Disease (known as the National Standard for workplace injury and disease recording). Employers may be required by legislation to report all lost-time injuries or serious incidents where no injury has occurred, to the relevant regulatory authority. (Source, AS/NZS 2299.1:1999, s7.1, p.43).

Other records, some of which may not be specifically required by legislation in your workplace,





are good practice and demonstrate that the required OHS procedures are being followed. Examples of these are:

- ✓ hazard identification reports,
- ✓ risk reviews and risk assessment,
- ✓ minutes of safety meetings,
- ✓ records of training and qualifications, and
- ✓ accident or incident investigation reports.

Any OHS records relating to a specific person are confidential and should be kept in a secure location. Access to these records should only be allowed by authorised personnel.



9

CHAPTER 9 – EXAMPLES

The remainder of this chapter is an extract from a diving operations manual.

The policy demonstrates the commitment of management to the safety of all people in the workplace, whether involved in diving operations or working in a supporting role.



The general information on safety is a good example of raising the awareness of employees and trying to influence their attitude towards safety. It is one thing to have detailed safety procedures, but unless the employees have the right attitude towards safety, the procedures are not likely to be followed correctly. In situations where there are no set procedures, inappropriate shortcuts or unsafe actions may be taken.

It is vital that you, as supervisor, walk the talk. The dive team will take their lead from you. If your attitude is that safety comes first, you are likely to be successful in conducting and concluding dive operations safely and without risks to the health of the dive team.

HEALTH AND SAFETY POLICY

■ POLICY GENERAL STATEMENT

This organisation recognises that the promotion and maintenance of occupational health and safety is the responsibility of all persons in the workplace. It is the duty of every person to ensure that each task is undertaken in a safe manner and to comply with the safe work procedures as outlined in this manual at all times. Employees are expected to report any unsafe condition or work practice to their Supervisor immediately.

This organisation considers a healthy working environment and accident prevention as being of the greatest importance in all our operations. It is the duty of all employees and trainees to conform to the policy, safety codes of practice, manuals and to accept and carry out their responsibilities.



All employees with specific responsibility for health and safety must ensure that the responsibility is adequately delegated in their absence.

All employees who authorise work to be carried out at any time must ensure there are adequate health and safety facilities available.

The appropriate legislation and statutory regulation applicable to offshore and onshore activities will be complied with at all times, but this in itself is not enough. All employees have a legal duty to take responsible care of themselves and any other person who may be affected by their acts and omissions whilst at work, and to co-operate with management and all other persons directly or indirectly involved in the organisation's activities. All work methods should be continually appraised to identify ways of reducing risk to employees, trainees, and members of the public.

The management will give full backing to this policy and will support all those who endeavour to carry it out. The participation of all members of our workforce is required if we are to



achieve our goal of a safe and healthy work environment.

- a) "Safety Is Our Highest Priority"
- b) Signed by

Director
The Organisation

SAFETY



Safety must not be the concern of a few, but involves every one. It has been described rightly as a state of mind. Although this is true, a safe state of mind will never compensate for everything.

Safe conditions at work will be achieved by:

- ✓ having safe well designed and maintained equipment,
- ✓ having correct and comprehensive procedures – mobilising, operating, maintaining, repairing and emergency procedures,
- ✓ by having competent personnel – well selected and trained – with a safe and positive attitude towards their job.

■ ACCIDENT CAUSES

An accident is defined as an unplanned, unwanted event that has resulted or could have resulted in injury or property damage.

Accidents don't just happen. They are caused through what is known as the accident chain.



- ✓ Background attitude (don't know, don't care etc.)
- ✓ Mistake by a person
- ✓ Unsafe act or condition
- ✓ Accident

The solution to the problem is to remove careless background attitudes and to develop a responsible one based on awareness of hazards and alertness to danger.

We all have such awareness built in our instincts for self-preservation but this is limited only to immediate and obvious danger threatening ourselves.

We need to develop this safety consciousness to extend it to situations projected into the future and affecting others as well as ourselves.

- ✓ We should know our job well (if in doubt ask)
- ✓ We should perform our work in such a way that it will not create or leave hazardous situations





- ✓ We should take an active part in every aspect of the job (planning, briefing, debriefing etc.)
- ✓ We should report all hazards, unsafe practices and accidents
- ✓ We would wear protective equipment (accidents can also happen to us)
- ✓ We have the responsibility of teaching accident prevention to new team members

ACCIDENTS, MISHAPS, NEAR MISSES ETC

Figure 1: Tye & Pearson (British Safety Council 1976) have published the following statistical evidence.

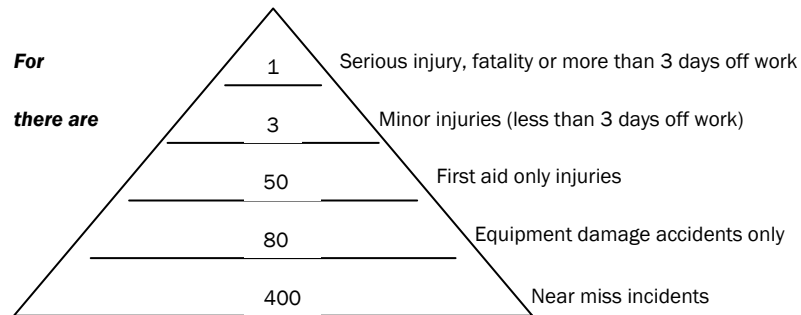


Figure 2: Accident Pyramid

In short, this demonstrates that for each serious injury accident there are more than 500 warning shots⁵.

It is vital to report every incident, accident, mishap, near miss etc., as they all constitute warnings that there is a situation that deserves attention.

ATTITUDES

DIVING IS A DANGEROUS OCCUPATION

Unprotected human beings cannot live or even survive underwater more than a few seconds or minutes at any one time. To do so they rely on technology to maintain amongst other things a steady supply of breathable gas, with a view to ensuring adequate oxygen supply to the brain and neurological system.



This leaves divers in a very precarious situation when equipment failure occurs. In all operations contingency will normally be built into every system so that a single failure can be compensated for by a form of emergency alternative.

Failures can and do happen. However, human beings carry in their minds the fallacy that accidents only happen to other people, or if they admit the possibility that it can happen to them, it will not happen today.

This is a typical human attitude also known as the human factor that leads us to adopt all sorts of irrational attitudes – situations where our behaviour does not correspond to our

⁵ Note that according to a report put out by the Canadian Association of Diving Contractors, the ratio in commercial diving is five to one. In other words, only five warning shots for every fatality. See introduction and footnote 2 for full reference.



purpose.

It is important that as members of the human race we realise and understand the contradictions we have built inside ourselves.

A factor, which is not really understood by most professional divers, is the amount of frustration that goes with the job. Most divers come into the profession with a desire to avoid dull routine and the requirement of “clocking in” and “clocking out”. They believe that this profession will mean freedom, battling with the elements, conquests of a last frontier.

The reality is quite different. The freedom they are seeking is hampered by umbilical lifelines, harnesses, helmets, attaching, preventing, holding etc.

They have to learn and obey endless rules and regulations, do's and don'ts, they have to submit themselves to long decompression schedules, being locked up in a chamber for hours or days, being deprived of freedom whilst on the job (no alcohol, freedom of movement, social life etc.) This permanent contradiction creates a stress, which is part of the job.

■ RESPONSIBLE ATTITUDES

Knowing the precariousness of human life in the water element, it is obvious that safety must be paramount in everything we do. This means that we are all responsible to one another and we cannot afford to tolerate any lax attitudes from ourselves or from others. Supervisors and divers alike must at all times act responsibly and set the example for others.



We have seen that all forms of accidents, dangerous occurrences, etc. are a source of information that is vital to prevent a reoccurrence. This means that we must have the courage to report these incidents. There is a lot of natural resistance towards reporting any mishap, we all feel guilty to a certain extent. Among the conscious or unconscious reasons any incidents are not reported, we find the following reasons;

- ✓ do not want to spoil a safety record,
- ✓ victim may not want the medical treatment,
- ✓ the reporter may be afraid of being mocked or victimised for telling on his or her mates,
- ✓ people may not want to engage in what they consider to be red tape reports etc,
- ✓ may not want to be the centre of interest,
- ✓ may not want to lose time from the job, and
- ✓ may be afraid to a certain extent of blame or punishment if a fault has been committed.

The reasons for reporting have been well stressed - that is to understand the reason why and to take corrective action. Blame or punishment is very rarely an element as most of the time there is a reason behind why people have behaved in a particular way, and this true reason can be tackled. Employers very rarely achieve anything positive by blaming or punishing.

■ BEHAVIOUR

A diving team has to be closely knit, as every member knows that he has to rely on others as well as they rely on him. It is important that members of a team be very positive about one another and communicates. Clear instructions are required, positive decisions need to be taken and there is no room for bragging. If an instruction is not clearly understood, clarification must be asked for.





Everyone must do his share of the work and never hide any damage they might have caused or discovered. Again, the words “responsible attitude” describes normal behaviour. Consumption of alcohol, drugs, etc. are not indications of a responsible attitude and do invariably affect safety of self and others. Cleanliness in work, personal hygiene, tidiness, good housekeeping, good organisation, makes good sense, reduces friction and improves effectiveness.

■ PERFORMANCE

Even the best divers have an occasional bad dive. This can be due to human nature, sheer bad luck, Murphy’s Law, physiological or environmental circumstances or a combination of any of these factors.



A critical factor or success for any dive will be the amount of preparation that goes in it. Has the job been absolutely and perfectly understood? Have all the tools needed been assembled and checked, are spare tools available in case some get lost, have all the possibilities of errors been investigated and contingency made for this? Are there a few spare shackles, pieces of rope, spare parts, and knives?

If the task cannot be done for some reason, have alternative tasks been established and tools prepared?

A good diver has to be determined. It is very difficult to plan things to perfection and expect that everything will go according to plan underwater. A good diver will have to show his determination in achieving the task he is there to perform and not give up at the first difficulty. This is where imagination, logic, lateral thinking and thorough preparation as well as determination will be necessary.

More in air diving, but also true in heliox diving, is memory loss. Many divers have experienced the embarrassing feeling when going back to surface of not remembering if a particular part of the task has been achieved or not. This can be due to the narcotic effects of nitrogen, daydreaming specific to the solitary nature of this sort of activity, or many other physiological factors.

However, it is a fact of diving life, and it is where the true professional will rather say that he does not remember or that he is not certain rather than pretend he has done the task and eventually be faced with the humiliation of being proved wrong.

In order to alleviate this well-known problem, it is quite important that both the diver and the supervisor communicate during the whole course of the dive. The supervisor will if necessary, keep asking the diver about the progress he making, the difficulties he is encountering and will make notes about the progress of the dive. Similarly, the professional diver will volunteer this information instead of waiting to be asked, and if asked will take the trouble to listen and to answer questions instead of considering them a hindrance to the progress of his work.

■ PERSONAL CHOICES

We have seen that diving equipment is built along the principle of no single failure. This means that any conceivable failure in the system sustaining the diver’s life must be compensated by an alternative emergency provision. The knowledge that bail out systems exist, coupled with the “knowledge” that accidents cannot happen to them or at least not on that particular day, seems to induce in some divers a false sense of security, and lead them to take chances and to agree to dive, even though some vital safety conditions are not met. This attitude is often caused by the fact that something is not right, and the diver prefers to take a chance rather than incurring the blame for not being ready.

When confronted with those situations, diving supervisors as well as divers will have to make their own decisions as to what to do. There cannot be a wise man on every work site towards



whom one can turn in case of doubt or conflict.

It is very advisable for every diver or supervisor to have clear picture in his own mind of what he considers his minimum standards. In other words, how much he will accept. This will facilitate things when decisions have to be made and they will appear consistent in their demeanour.

■ TAKING CHANCES

By this we mean doing something that should not be done under the assumption that this malpractice in itself is not important enough to be dangerous.

We have seen earlier that accidents do not happen; they are caused. Accidents are caused by a certain number of factors none of them critical on their own, but together combining to create a dangerous occurrence or an accident.

Taking a chance already provides one of the contributory causes and these bring you one-step closer to a potential accident.

In the course of any operation, and diving is no exception, a balance has always to be struck between perfection and what needs to be achieved. Understandably, the client wants fulfilment of the contract and asks as little interference as possible with his goal. Moreover, a client is often not in a position to perceive the potential consequences of certain situations.

It is primarily up to the dive supervisor to carefully weigh up whether a situation is acceptable or not, bearing in mind that taking a risk may involve jeopardising the life of the divers.

It is also up to the diver himself to insure that he or she is involved in the decision making process when it comes to operating in marginal conditions and deciding whether to take chances or not.

In order to illustrate what is meant by taking a chance, we will give an indicative list of such situations. This list is by no means exhaustive and is only given as examples;



- ✓ Diving without communication
- ✓ Diving scuba;
 - ☞ alone
 - ☞ with a cylinder partly filled
 - ☞ without checking the pressure content of the cylinder
 - ☞ without a buoyancy compensator
- ✓ Diving without a bail out bottle, or without checking its content
- ✓ Not checking your own diving gear, or leaving it to somebody else to check if for you
- ✓ Diving alone without informing anybody
- ✓ Starting a dive without informing the site engineer, winch operator, ship's master, etc
- ✓ Rushing through, forgetting, or partly performing check list
- ✓ Not performing a check list because it must have been done already by the person who dived just before you
- ✓ Diving without a sharp knife
- ✓ Not adjusting your apparent weight in the water properly





- ✓ Not keeping your umbilical clear
- ✓ Not tending a divers' umbilical at all times
- ✓ Overeating before a dive or reporting for work after a heavy night, or being under the influence
- ✓ Hanging on during a dive in order to finish a job (normally a positive attitude, however don't overdo it) regardless of;
 - ✎ decompression
 - ✎ cold
 - ✎ exhaustion
 - ✎ tidal current
 - ✎ impending gas shortage
- ✓ Not having a standby diver, or he or she not being fully ready, or tied up doing any other job
- ✓ Not having a set of emergency procedures, or not knowing them
- ✓ Not knowing emergency communication code
- ✓ Not analysing gases before diving
- ✓ Being aware that a piece of equipment needs repair and allowing the situation to drag on
- ✓ Accepting sub standards the "that will do" or "that will be good enough" or "that will do for the time being" attitude

It all boils down to attitude. Every member of a team must be responsible for himself and for others. If individual standards are maintained the level of performance of the whole team will be high.



No job is so important and no service is so urgent that we cannot take the time to perform our work safely.

DIVERS SAFETY (SUMMARY FOR DIVERS)

You are part of a Team.

- ✓ Do your share of work and chores
- ✓ Be responsible about alcohol, drugs, hangovers etc
- ✓ Report damages, mishaps, incidents
- ✓ Communicate clearly
- ✓ Be clean and hygienic
- ✓ Anticipate; think ahead – "what if?"
- ✓ If something has failed, make sure it is reported for modifications on other work sites

Be loyal to your company. Keep complaints and grievances in-house prepare your Dives.





- ✓ Plan, think about the job beforehand – how could things go wrong?
- ✓ Think about alternative ways
- ✓ Have the two next size spanners just in case
- ✓ Have some length of rope
- ✓ If you have to use bolts or nuts, have a few spares
- ✓ Have you fully understood the task? If you have not at the surface, chances are you won't underwater.

Be Positive.



- ✓ If you have failed – say so
- ✓ Don't take chances
- ✓ Be positive in your approach, anybody can criticise but original proposals are harder to come by
- ✓ Seek information; be permanently on the look out to learn more
- ✓ Be aware of your own frustrations and limitations, and don't let them give you a negative attitude
- ✓ Do not brag or boast about; your achievements, your knowledge, your performance, your experience or your expertise

If you do, you know that someone will call your bluff someday and meanwhile you may be endangering yourself or someone else.



- ✓ Express your doubts and your fears
- ✓ Be very clear in your own mind as to what you will accept, what you will refuse and live by it
- ✓ Be determined that once you have made up your mind, you will succeed
- ✓ This is a job where you have to be persistent
- ✓ Show initiative if it does not work as planned, rather than giving up and blaming it on others look for alternatives
- ✓ Be organised and have your paperwork in order. In addition, have a diary and a notebook and use them. Ideas and queries are cropping up all the time unless you make a note of them, you are losing opportunities.

Be Ready for the Unexpected.



- ✓ Accept not only that an accident could, happen to you, but also that it could be today and be ready for it
- ✓ Be tidy underwater; be aware of the path of your umbilical
- ✓ Have your own personal safety knife as sharp as a razor
- ✓ If in trouble do not be bothered by the fear of looking a fool and ask for help if necessary before you are in real trouble
- ✓ Scream and survive



- ✓ Control your breathing
- ✓ If you meet with an emergency, don't let the emotional response overcome you. You are ready for it. You know what has to be done – simply do it.



10

CHAPTER 10 – SUMMARY



- ✓ A dive supervisor is responsible for the safe conduct of a diving operation.
- ✓ Duty of care is a statutory responsibility to take reasonable care.
- ✓ All personnel involved in a diving operation are to be supervised by a dive supervisor. In addition, inexperienced staff or experienced staff undertaking a new or unfamiliar task need to be more closely supervised to ensure their safety.
- ✓ There are a number of different methods or guidelines for identifying hazards, assessing risks, developing, and selecting risk control measures. ADAS has specified the approach to be taken by its staff and students, tailored to diving and based on a comprehensive risk assessment process and hierarchy of controls.
- ✓ The level of risk may change due to a change in working conditions, environmental conditions, new personnel, new technology or new knowledge.
- ✓ Risks and risk control measures need to be continuously monitored to identify any inadequacies and should be reported appropriately or appropriate action taken.
- ✓ Hazardous events may be one or a combination of an emergency (dangerous situation), fire or flammable gas release, accident or intentional harm.
- ✓ A dive supervisor will need to deal with hazardous events according to procedures.
- ✓ A dive supervisor must be trained in the recognition and management of diving emergencies, as well as first aid management and communicating findings to medical support.
- ✓ Appropriate OHS records need to be maintained, ensuring confidentiality and security.
- ✓ All accidents and incidents must be recorded and reported to management.
- ✓ Legislation requires notification to the relevant authorities of serious accidents and injuries in the workplace.
- ✓ Specific regulations for storing and handling hazardous goods and equipment include hazardous substances regulations, dangerous goods regulations and plant regulations, which are available from the local regulatory authority.
- ✓ No job is so important and no service is so urgent that we cannot take the time to perform our work safely.

