NOPSEMA
Australia's offshore energy regulator

DRAFT GUIDELINE

Complying with the Diving Safety Regulations

Document No: N-04500-GL1222 A734806

Date: 15/06/2020

Guideline for complying with Chapter 4 (Diving) of the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009, and equivalent State and Northern Territory legislation where powers have been conferred.

Overview

- Before commencing diving work that forms part of a diving project, a diving contractor must have a diving safety management system (DSMS) that is accepted and current.
- Once the DSMS is accepted and there is a contract in place with an operator, the diving contractor and operator together prepare a diving project plan (DPP). The operator must approve the diving project plan for use in the execution of the scope of diving operations.
- These guidelines have been prepared under subregulation 4.4(1) of the Regulations, and are considered to be in force from the date of publication of this revision.
- The guidelines are divided into five main sections:
  - Section 1 provides an introduction and background information
  - Section 2 explains the regulations
  - Section 3 outlines the content requirements for a diving safety management system
  - Section 4 contains a glossary of terms and abbreviations
  - Section 5 lists supplementary information sources.

Table of contents

Revision history

Revision	Revision Date	Summary of changes
1	01/01/2005	Adoption of Departmental guidelines at NOPSA creation.
2	18/06/2018	3rd Edition. Revision of guidelines to reflect updated references to the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* and Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009.
3	04/06/2020	Major review of diving guideline.

1. Introduction

1.1. Health and safety legislation

In Australia, the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGS Act) provides that NOPSEMA is the regulator for health and safety (OHS), structural (well) integrity and environmental management of petroleum exploration and development activities in Australia's offshore areas beyond the first three nautical miles of the territorial sea. Similar provisions are conferred on NOPSEMA under other relevant state and Northern Territory legislation as they apply in coastal waters (those areas less than three nautical miles from the territorial sea). At the time of publication of this guidance, Victoria was the only State or Territory to have conferred powers on NOPSEMA for OHS functions in designated coastal waters. While other jurisdictions may consider the future conferral of these functions, it remains the obligation of the duty holder to comply with other relevant state and territory legislation, where applicable.

Diving activities are covered under Chapter 4 (Diving) of the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009.

1.2. Penalties

A number of offences are created under the regulations for either doing or failing to do some thing or things. A scale of penalties has been proposed and agreed with the working group. The penalties are expressed as 'penalty units'.

A penalty unit is used instead of a monetary figure as a matter of convenience by the Commonwealth Government and the *Crimes Act 1914* (section 4AA) provides that the amount of monetary penalties will be stated in the terms of a "penalty unit" in all Commonwealth legislation.

This means that if the value of money changes radically over time, or the community adopts a different attitude to the severity of offences, only section 4AA of the *Crimes Act 1914* needs to be amended to increase or decrease penalties, not all of the separate pieces of legislation containing monetary penalties.

It should be noted that all penalties quoted in these regulations are maximum penalties. The actual penalty for any offence is decided by the court.

2. Regulations and guidance

2.1. Preliminary

2.1.1. Regulation 1.1: Name of Regulations

Reg 1.1	**Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009.**

Guidance

This is self-explanatory. Throughout the remainder of this document they are referred to as the Regulations

2.1.2. Regulation 1.2: Commencement

Reg 1.2	**These regulations commence on 1 January 2010.**

Guidance

These regulations are Australian Commonwealth law and came into force on 1 January 2010.

2.1.3. Regulation 1.3: Repeal

Reg 1.3	**The following regulations are repealed:** **(a) The Petroleum (Submerged Lands) (Occupational Health and Safety) Regulations 1993** **(b) The Petroleum (Submerged Lands) (Management of Safety on Offshore Facilities) Regulations 1996** **(c) The Petroleum (Submerged Lands) (Diving Safety) Regulations 2002**

Guidance

The various Petroleum (Submerged Lands) Regulations are no longer in force. The OPGGS Act and associated regulations are the current legislation governing diving activities in Commonwealth waters.

2.1.4. Regulation 1.4: Objects

Reg 1.4(4)	**An object of these regulations is to ensure that diving to which the OPGGS Act relates is carried out in Commonwealth waters only in accordance with diving safety management systems that have been accepted by NOPSEMA**
Reg 1.4(5)	**An object of these regulations is to ensure that diving safety management systems make provision for the following matters in relation to the health and safety of persons:** **(a) the identification of hazards and assessment of risks** **(b) the implementation of measure to eliminate the hazards, or otherwise control the risks** **(c) a comprehensive and integrated system for management of the hazards and risks** **(d) monitoring, audit, review and continuous improvement.**
Reg 1.4(6)	**An object of these regulations is to ensure that the risks to the health and safety of persons who carry out diving to which the Act relates are reduced to a level that is as low as reasonably practicable.**

Guidance

Three of the six objects of the regulations relate to diving. They provide the overarching objectives that the regulations seek to achieve and that NOPSEMA seeks to achieve through the assessment, inspection, investigation and enforcement of diving operations.

2.1.5. Regulation 1.5: Definitions

Guidance

In the regulations a list of definitions is provided. In these guidance notes the listed is broken up into specific definitions which are contained in this section.

The definitions in regulation 1.5 are provided to assist the user in interpreting the meaning of specific terms used in or throughout these regulations. They are intended to apply to these specific terms wherever the term occurs within and in the context of these regulations.

Accepted DSMS: a DSMS that has been accepted by NOPSEMA under regulations 4.5 or 4.6.

Guidance

'Accepted' means that the DSMS has been formally submitted to NOPSEMA and has been assessed by the regulator against the minimum standards of these guidelines and has been formally accepted as meeting the requirements of the regulations.

The Offshore Petroleum and Greenhouse Gas Storage Act 2006 (OPGGS Act).

Guidance

The OPGGS Act governs petroleum operations offshore beyond three nautical miles from the territorial sea baseline. The territorial sea baseline is usually, but not always, the low water mark. (In contrast, state and Northern Territory legislation governs petroleum operations onshore and as far as three nautical miles seaward of the baseline, referred to as 'coastal waters'). The Act includes provisions covering the granting of rights to undertake exploration for oil and gas, the drilling of exploratory and production wells, and the development, operation and decommissioning of oil and gas facilities. Section 782 of the OPGGS Act enables Regulations to be made to regulate petroleum activities, including arrangements for the management of safety. The Commonwealth and the states/Northern Territory jointly administer the PSLA through a Joint Authority arrangement. Each Joint Authority comprises the Commonwealth Minister and the relevant state/NT Minister. The relevant state/NT Minister carries out most day to day administration in accordance with legislative provisions.

Australian Diver Accreditation Scheme (ADAS): administered by the Board of the Australian Diver Accreditation Scheme.

Guidance

The Australian Diver Accreditation Scheme (ADAS) is a not-for-profit diver training and accreditation scheme operated on a cost-recovery basis.

ADAS offers accreditation to diving personnel who can establish that they have been assessed by an ADAS accredited training establishment (ATE) as meeting the competency requirements of the relevant Parts of

the AS 2815 series. This accreditation is only valid while diving operations are being undertaken in accordance with relevant legislation and operational standards and for a diver, while in possession of a current AS/NZS 2299.1:2015 medical certificate certifying him or her fit to dive.

In particular, ADAS accredits ATEs to conduct the training and competence assessments of divers to the levels of the various parts and to recommend their accreditation under the scheme. Accreditation as an ADAS ATE is conditional upon meeting demanding entry requirements and thereafter maintaining compliance with rigorous ongoing quality-assurance conditions.

AS/NZS, followed by a number: the Australian and New Zealand Standard of that number, as existing from time to time.

Guidance

Standards are published documents which set out specifications and a procedure designed to ensure that a material, product, method or service is fit for its purpose and consistently performs the way it was intended to. They are intended to act as vehicles of communication for producers and users. They establish a common language, which defines quality and establishes safety criteria.

As part of the closer economic relations agreement, Standards Australia has a formal agreement for preparing and publishing joint standards where appropriate with Standards New Zealand. Such standards apply equally in both countries.

Standards are reviewed and updated periodically, and a reference in these regulations to a particular standard is to be taken as referring to the most recent version of that standard.

Diving: defined in regulation 4.1.

Guidance

See chapter 4, part 1, regulation 4.1 of the Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009 (the Regulations) and section 2.2.1 of these guidelines.

Diving contractor: a person who enters into a contract to conduct a diving project.

Guidance

A diving contractor is a contractor within the ordinary meaning of the term who, by reason of having access to the appropriate equipment, procedures, personnel and specialist knowledge, undertakes to provide diving services on a contractual basis in support of activities for the offshore petroleum industry.

Diving operation: an offshore petroleum operation or greenhouse gas storage operation consisting of one or more dives.

Guidance

A diving operation is the portion of a diving project identified in the diving project plan which can be managed safely by one supervisor. Diving operations can be made up of either a single dive or a number of dives. It will normally be evident what this portion of work is, but factors such as the task, site conditions and the diving techniques to be used; all contribute to making the decision. For example, a 28-day diving project may be made up of 40 diving operations.

Diving project: means an activity consisting of one or more diving operations.

Guidance

A 'diving project' is the term used for the overall diving job - whether it lasts two hours or two months. It means any activity, made up of one or more diving operations, in which at least one person takes part or will take part as a diver. A diving project can apply to both a continuous period of elevated pressure, as in saturation diving, or to a number of diving operations, possibly taking place over several days, where the divers are not under continuous elevated pressure.

Diving safety management system (DSMS).

Guidance

A DSMS is a comprehensive integrated system for managing safety, prepared and documented by a diving contractor in consultation with the contractor's employees and/or their representatives. It must include detail of the contractor's policies and operational protocols and procedures, equipment certification, maintenance and operating procedures, risk assessment procedures, and management arrangements to ensure that risks to the safety of personnel involved in the diving operations are reduced to a level as low as reasonably practicable.

The DSMS must demonstrate to the satisfaction of the regulator, through its contents and supporting materials, that the diving contractor knows what technical and human activities occur, how they are to be managed, and how safety will be ensured in the event of an emergency.

It must also identify methods to be used for monitoring and reviewing all activities in connection with the diving contractor's operations with a view to ensuring the continual improvement of those safety arrangements.

Once a DSMS has been accepted, the regulator conducts periodic reviews the safety performance of the diving contractor through on-site audits, inspections and the investigation and analysis of incidents, to determine whether the applicable standards and arrangements are being followed.

For detailed guidance on the preparation of a DSMS, see section 4 of this guidance.

Facility: defined by Clause 3 of Schedule 3 to the OPGGS Act.

Guidance

Facility means any vessel or structure located in an adjacent area that is used or constructed for the recovery of petroleum, or carries, contains or includes equipment for carrying out operations with a well from the vessel or structure. For a more detailed definition of *facility*, see Schedule 3, part 1 Clause 4 of the OPGGS Act.

Manned submersible craft: a submersible craft that is designed to maintain its occupant, or some or all of its occupants, at or near atmospheric pressure while submerged (whether or not it is self-propelled, and whether or not it is supplied with breathing mixture by umbilical), including a craft in the form of a suit.

Guidance

Alternatives to deep hyperbaric diving include one-atmosphere systems that provide the operator with an enclosed environment at surface pressure and which mimic the manual dexterity of the diver through the development of mechanical arms.

Manned submersibles can be self-propelled diving suits or submarine vehicles. They can operate untethered and self-contained or tethered by an umbilical link with the surface and could be free swimming or bottom crawling and self-propelled

Operator: defined in Clause 3 of Schedule 3 to the OPGGS Act.

Guidance

The operator of a facility is the person/company who has been formally identified by the titleholder(s) of the field in writing to NOPSEMA as being responsible for the overall management and operation of the facility. The operator may be the titleholder, a member of a joint venture partnership or a company contracted by the titleholder(s) to undertake the operation of the facility.

The operator under Australian law has the responsibility for preparing and submitting to the regulator safety case for operating a facility. The operator has the fundamental responsibility to ensure that the facility is operated according to the policies, practices and procedures set out in the safety case.

The operator must undertake all reasonable actions to ensure the health and safety of those persons, including contractors, employed on the facility. These actions must include the implementation of a continuous improvement process through adequate arrangements for audits, the systematic evaluation and review of hazards to ensure that risks personnel are reduced to the lowest level that is reasonably practicable.

Offshore petroleum operations: defined in section 643 of the OPGGS Act.

Guidance

Refers to any regulated operations, including diving operations that take place in NOPSEMA waters involving any of the following:

- exploration
- recovery
- processing
- storage
- offloading or piped conveyance of petroleum.

'Regulations' means regulations made under the OPGGS Act, including these regulations.

Guidance

The regulations legislate all aspects of offshore petroleum operations. The OPGGS Act itself is supplemented and extended by subordinate legislation such as regulations, directions and guidance documents.

Regulations relate to specific issues identified in an act of Parliament and are made through the formal law making process. They are made by approval of the Governor-General without the need for the formal up-front approval of Parliament, although a process is in place to enable the Parliament to assess and then disallow subordinate legislation if it so desires.

2.2. Diving

2.2.1. Regulation 4.1: Meaning of diving

Reg 4.1(1) For these Regulations, a person is *diving* if he or she:

(a) is in a chamber inside which the ambient pressure is equal to or higher than the hydrostatic pressure at a depth of 1 metre in seawater (whether or not the chamber is submerged in water or another liquid); or

(b) is submerged in water or another liquid and his or her lungs are subjected to a pressure greater than atmospheric pressure (whether or not he or she is wearing a wetsuit or other protective clothing); or

(c) is in a manned submersible craft that is submerged in water or another liquid.

Reg 4.1(2) For these regulations, diving also includes diving using a snorkel and diving without the use of any breathing apparatus.

Reg 4.1(3) For these regulations, diving does not include:

(a) diving using a snorkel for the purpose of conducting an environmental survey; or

(b) diving without the use of any breathing apparatus for that purpose.

Guidance

It must be noted that these Regulations are intended to apply to anyone who is undertaking diving to undertake work of any kind subject to the provisions of the Regulations.

A person therefore is diving if they are immersed in water or any other liquid to perform work of any kind and/or is in a chamber where the pressure is greater than normal atmospheric pressure. Diving includes immersion while in a manned submersible craft or atmospheric diving system, and also while undertaking diving using a mask and/or snorkel and /or without any equipment at all, except for the purposes of conducting an environmental survey.

When diving using a snorkel and without the use of any breathing apparatus, the diving contractor needs to consider industry guidance, such as IMCA D 08/19 Surface Swimmers.

When undertaking a diving operation for the purposes of conducting an environmental survey of some kind, the operator and diving contractor will need to consider carefully the extent to which the activity is related to exploration, recovery, processing, storage, offloading or piped conveyance of petroleum, in order to determine whether the operation falls under the scope of the Regulations or not.

To illustrate, an operation to conduct an environmental survey that would likely be considered to fall under the scope of these Regulations is one which is conducted from a fixed facility or vessel and involves the survey being conducted at, or in connection with an existing facility. Environmental monitoring, scour or marine growth survey at a facility would fall within this meaning. Note the definition of *facility* under Clause 3 of Schedule 3 to the OPGGS Act includes pipelines.

An example of an environmental survey falling outside of the scope of the Regulations would include those using a snorkel, or where no breathing apparatus is used (as detailed in the above Regulation 4.1), or where the operation takes place at a location where there is no facility present. A baseline survey conducted prior to construction of a facility would fall within this meaning.

2.2.2. Regulation 4.2: When a diving operation begins and ends

Reg 4.2(1)	**For these regulations, a diving operation begins when the diver, or first diver, who takes part in the operation, starts to prepare to dive.**
Reg 4.2(2)	**A diving operation ends when the diver, or last diver, who takes part in the operation, leaves the water or the chamber or environment in which the dive took place and has completed any necessary decompression procedures.**
Reg 4.2(3)	**A diving operation includes the time taken for therapeutic recompression if that is necessary.**

Guidance

The diving operation does not necessarily finish once the last diver has returned to atmospheric pressure. Good industry practice and most decompression procedures require the diver to remain in the close vicinity of a recompression chamber for a specified time in case there is a need for treatment of symptoms of decompression illness. The diving project is not completed until this period of 'bend watch' has finished.

2.3. Diving Safety Management System

2.3.1. Regulation 4.3: No diving without a DSMS

Reg 4.3(1) **Before beginning diving work that forms part of a diving project, a diving contractor must:**

(a) have a DSMS that is:

(i) accepted; and

(ii) current

Penalty: 50 penalty units.

Guidance

This regulation puts in place the requirement for all diving contractors who intend to undertake offshore diving work to have a DSMS that has been accepted by NOPSEMA. A DSMS formally accepted by NOPSEMA is the fundamental prerequisite for a diving contractor to engage in diving activities subject to the OPGGS Act.

The DSMS must also be current, that is:

a. it must be an accurate representation of the policies, staffing, procedures and equipment that the diving contractor is currently using; and

b. it must be an up-to-date revision as per the provisions of regulation 4.3.

A DSMS will expire on the fifth anniversary of the last acceptance date. A diving contractor must therefore submit a five-yearly revision of their DSMS well before the fifth anniversary of acceptance, to avoid the DSMS losing its 'current' status. Diving contractors are reminded that it is a strict liability offence to allow diving or to continue a diving project without an accepted and current DSMS in place.

NOPSEMA will typically accept or reject a revision of the DSMS within 28 days of receiving the submission. However, the Safety Regulations also provide for NOPSEMA and the diving contractor to agree on an extended period of time to make a decision on the DSMS. Diving contractors are reminded to submit the five-yearly revision of their DSMS early enough to ensure their DSMS remains current.

See NOPSEMA guideline N-04000-GL0225:

"Making a submission to NOPSEMA"

Reg 4.3(1) Before beginning diving work that forms part of a diving project, a diving contractor must:

(b) give the DSMS to the operator of the diving project.

Penalty: 50 penalty units.

Guidance

The diving contractor must give the operator for the diving project a copy of the current DSMS in force. It is important for the operator for the diving project to be aware of the scope of the DSMS accepted by NOPSEMA in terms of its suitability for the intended diving activities.

Reg 4.3(2) The operator of a diving project must not allow diving work, which forms part of the diving project, to begin if the diving contractor has not given to the operator a DSMS that is:

(a) accepted; and

(b) current.

Penalty: 100 penalty units.

Guidance

The operator has overall responsibility for the safe execution of projects associated with a facility and its safety case. The operator and diving contractor together have responsibility, under the Diving Regulations, for ensuring that a safe diving project is carried out. The operator must ensure that the diving contractor conducts the project in accordance with the DSMS and that arrangements are coordinated between the DSMS and the facility safety case. The operator must be in possession of a copy of the diving contractor's DSMS and ensure the diving contractor's DSMS is appropriate for the proposed activities of the diving project. The operator may check on the currency status of the diving contractor's DSMS through the Register of Diving Safety Management Systems as established under regulation4.9.

Reg 4.3(3) A diving contractor must not allow diving to continue on a diving project if the DSMS is no longer:

(a) accepted; and

(b) current

Penalty: 50 penalty units.

Guidance

The DSMS must be accepted – i.e. it must not expire during a diving project. Furthermore, it must accurately address the activities and requirements of the diving project. If the diving project introduces

new diving activities that are not provided for in the registered DSMS then the contractor must cease diving.

The DSMS must also be current – i.e. it must be an accurate representation of the policies, staffing, procedures and equipment that the diving contractor is currently using, and it must be an up-to-date revision as per the provisions of regulation 4.10.

If the diving contractor does not possess a DSMS that is accepted and current, the diving work cannot be undertaken or, if diving is being undertaken, it must cease.

Related topic: *see Reg 4.3(1) 'Guidance of DSMS expiry'*

Reg 4.3(4) For this regulation, an accepted DSMS is current if:

(a) the DSMS has not been revised, or the acceptance of the DSMS has not been withdrawn, since its latest acceptance.

(b) it is not more than five years since its latest acceptance.

Guidance

Regulation 4.10 mandates a range of circumstances where a diving contractor's DSMS must be formally revised and given to NOPSEMA for re-assessment and renewal of its acceptance. These circumstances include at the end of each period of five years.

If the DSMS has been:

a. revised under any of the provisions of regulation 4.10 but not been accepted by NOPSEMA; or

b. it is more than five years since the latest revision and acceptance by NOPSEMA, then the DSMS is not current and the diving contractor cannot undertake diving work that forms part of a diving project subject to these regulations.

Reg 4.3(5) Strict liability applies to subparagraphs (1) (a) (i) and (ii), paragraphs (2) (a) and (b) and paragraphs (3) (a) and (b)

Note: A person may consult the register mentioned in regulation 4.9 to find out if a DSMS is accepted and current.

Guidance

If a prosecution is to be undertaken for an offence under these regulations, there are two ways of describing the offence – offences that have fault elements and offences of strict liability:

a. When prosecuting offences with fault elements, the prosecutor has to prove not only that the offence was committed, but that there was an intention to commit an offence.

b. In the case of strict liability offences, the prosecutor only has to prove that the offence was committed. For example, in regard to "No diving without a DSMS", the prosecutor only has to prove that diving was undertaken and the diving contractor did not have a current and accepted DSMS. There is no requirement to prove that the diving contractor intended to commit anoffence.

2.3.2. Regulation 4.4: Contents of DSMS

Reg 4.4(1) A DSMS must meet the minimum standards set out in the guidelines made by NOPSEMA for this subregulation, as in force from time to time.

Guidance

These guidelines give comprehensive advice on formulating a DSMS. Detailed guidance can be found in section 3 of the guidelines.

Reg 4.4(2) A DSMS must provide for:

(a) all activities connected with a diving project

Guidance

The diving contractor must ensure that the DSMS covers all the activities that will occur or are likely to occur in undertaking a diving project. The DSMS must make clear what types of diving activities are to be provided for. If the DSMS aims to provide for any or all of the following:

a. Air diving
b. Nitrox diving
c. Surface mixed gas diving
d. Saturation diving
e. Atmospheric suit diving

This should be detailed in the DSMS scope.

Reg 4.4(2) A DSMS must provide for:

(b) the preparation of a diving project plan, in accordance with part 3, for a project (including consultation with employees in the preparation of the plan) and the revision of the plan as necessary; and

Guidance

The DPP is a detailed plan developed to manage a specific diving project. It must take into account the specific requirements of the particular diving job and dive site, and, where relevant, must form the bridging document between the operator's safety case all other relevant safety cases and the DSMS.

There may be a diving project that includes multiple facility safety cases. As such, its preparation requires consultation between the relevant operators, diving contractor and employees. It must ensure arrangements between the safety management systems are coordinated and clearly understood, and that there is common understanding and agreement on issues such as simultaneous operations and emergency response.

Reg 4.4(2) A DSMS must provide for:

(c) the continual and systematic identification of hazards related to a diving project

Guidance

The DSMS must contain details that demonstrate the diving contractor has effective methods in place to ensure hazards are identified, and risks are continually and systematically assessed, and either eliminated or reduced to as low as reasonably practicable (ALARP). The first stage in eliminating or reducing risk is identifying any hazards that could cause harm. The DSMS must require that a hazard identification process is an integral part of the diving project plan and give details as to how this is to be undertaken.

Related topic: *see Reg 4.16 'Contents of diving project plan'*
see sub-element 2.1 'Hazard identification and risk management'

Reg 4.4(2) A DSMS must provide for:

(d) the continual and systematic assessment of:

(i) the likelihood of the occurrence, during normal or emergency situations, of injury or damage associated with those hazards

(ii) the likely nature of any injury or damage.

Guidance

The second stage in eliminating or reducing risk is assessing the risks that arise from those hazards. These risks should be assessed for normal and emergency situations. The DSMS must include a risk assessment process which is demonstrated to be an integral part of the diving project plan, and give details as to how this is to be undertaken.

Related topic: *see Reg 4.16 'Contents of diving project plan'*
see sub-element 2.1 'Hazard identification and risk management'

Reg 4.4(2) A DSMS must provide for:

(e) the elimination of risks to persons involved with the project and associated work including:

(i) risks arising during evacuation, escape and rescue in case of emergency

(ii) risks to persons involved with the operation arising from equipment and hardware

or the reduction of those risks to as low as reasonably practicable.

Guidance

When risks have been analysed and assessed, decisions can be made about workplace precautions and risk controls. The DSMS must require that this process is an integral part of the diving project plan and give details as to how this is to be undertaken.

This regulation requires that risks be eliminated or reduced to ALARP. It particularly emphasises that this is to include risks to persons arising during escape, evacuation and rescue in case of emergency, and from equipment and hardware.

It should be noted that this requires the diving contractor to eliminate risks. It recognises, however, that in some instances total elimination of risk is not possible because of technological limitations or prohibitive cost. It therefore provides the option of reducing the risks to ALARP, which involves an assessment of relative costs, effectiveness and reliability of different control measures.

In practice, ALARP means that the diving contractor has to show through reasoned and supported arguments that there are no other practicable options that could reasonably be adopted to reduce risks further. Further guidance on the concept of ALARP is available in NOPSEMA's guidance note on ALARP (N-04300-GN0166).

Related topic: *see sub-element 2.1 'Hazard identification and risk management'*

Reg 4.4(2) A DSMS must provide for:

(f) the inspection and maintenance of, and testing programs for, equipment and hardware integral to the control of those risks

Guidance

The diving contractor must have an effective system of maintenance to ensure operational safety. The diving contractor must demonstrate that standards are in place for maintaining plant equipment and hardware.The applicable inspection, maintenance and testing standards and procedures identified must be implemented effectively.

Reg 4.4(2) A DSMS must provide for:

(g) communications between persons involved in a diving project

Guidance

The diving contractor must develop and maintain effective participation and consultative mechanisms that promote active communication and involvement of all personnel in the management of safety and the control of workplace hazards and risk.

The diving contractor should demonstrate that employees are informed of health and safety issues, and that formal methods of communication are used to advise personnel of their health and safety related roles, responsibilities, accountabilities and authorities. Key information includes:

a. the organisation's vision, values and beliefs which underlie the formal health and safety policy
b. the commitment of senior management to its implementation
c. plans, standards, procedures and systems relating to implementation and measurement of performance
d. factual information to help secure the involvement and commitment of employees
e. performance reports
f. lessons learned from accidents and other incidents.

Related topic: *see sub-element 1.3 'Workforce involvement and communication'*

Reg 4.4(2) A DSMS must provide for:
(h) the performance standards that apply to the DSMS

Guidance

The diving contractor should establish, maintain and monitor measurable and achievable health and safety objectives, plans and performance standards consistent with the company's health and safety policy.

Monitoring health and safety performance should be a line management responsibility and requires both active systems (which monitor the design, development, installation of management arrangements and risk control strategies) and reactive systems which monitor accidents, ill health, incidents and other evidence of deficient health and safety performance.

Performance standards are the basis of planning and measuring health and safety achievements – 'what gets measured gets done' applies. If organisations are to be efficient and effective in controlling risks, they need to coordinate their activities to ensure everyone is clear about what they are expected to achieve. They need to understand and specify what has to be done, both to control the direction of the organisation as a whole and to deal with specific risks.

Setting performance standards is essential if policies are to be translated from good intentions into a series of coordinated activities and tasks. Performance standards should:

a. set out clearly what people need to do to contribute to an environment which is free of injuries, ill health and loss
b. help identify the competencies which individuals need to fulfil their responsibilities
c. form the basis for measuring individual, group and organisational performance.

They should link responsibilities to specific outputs and specify:

a. Who is responsible (a name or position of a person who has the competence to undertake the responsibility)
b. What they are responsible for (what is to be done and how. It may involve applying specific procedures or systems of work and the use of specific documents or equipment because of legal duties, for example:
    i. preparing plans to implement the health and safety policy
    ii. carrying out risk assessments
    iii. periodic monitoring of health and safety performance
    iv. checking contractors' health and safety performance before awarding contracts
    v. conducting tool box meetings which many include , for example, a reminder of important health and safety procedure or lessons form a recent incident or accident
    vi. providing training

c. When the work should be done - some work may occur regularly (for example monthly inspections) or only when particular tasks or jobs are being done (for example when using a particular substance or piece of equipment). A time frame should be set for these tasks or inspections.

d. What the expected result should be. Some outputs may relate to legal requirements (for example, the achievement of a certain air quality standard). Alternatively, the output may be satisfactory accomplishment of a specified procedure (for example, training). Output standards can be used to specify how individuals will be held accountable for their health and safety responsibilities.

People with specific responsibilities for health and safety should be held accountable. This may involve the use of existing personnel systems such as:

a. individual job description containing references to health and safety responsibilities

b. performance review and appraisal systems measuring and rewarding individual performance in health and safety activities

c. procedures identifying and acting upon failures by any employee (including managers) to achieve adequate health and safety performance. These can be integrated with normal disciplinary arrangements and be invoked when justified by the seriousness of the failure to comply.

Reg 4.4(2) A DSMS must provide for:
(i) a program of continuous improvement

Guidance

The DSMS must provide for continuous improvement so that risks to persons involved with a diving project are eliminated or reduced to ALARP. ALARP is not an absolute term: it is relative to the state of knowledge and technical development at any one time and it is inevitable that, over time, standards and procedures will change. The DSMS will also change from the one originally accepted by NOPSEMA. Achievement of ALARP therefore requires the constant monitoring and development of the diving contractor's policies, systems, plant and equipment and techniques incorporating current good industry practice to produce an integrated continuous performance review and corrective action implementation process. Performance should be assessed by internal reference to key performance indicators and external comparison with local, national and international best practice.

The diving contractor must detail in the DSMS how the continuous improvement process will be managed throughout diving projects. This may be as simple as a formal policy statement committing the organisation to:

a. establishing appropriate standards and procedures for the management of projects based on risk assessment and best practice standards for high risk training and assessment

b. implementing plans to achieve objectives and standards

c. measuring progress with achieving plans and compliance with standards

d. reviewing against objectives and standards, identifying opportunities for improvement and taking appropriate improvement actions to feed back into the process.

Related topic: *see sub-element 5.2 'Review and improvement'*

Reg 4.4(3) A DSMS must:
(a) specify any standard or code of practice that is to be used in a diving project

Guidance

The DSMS must specify what Australian and international standards or codes of practice that the diving contractor will apply to the design, construction or operation of any relevant plant, equipment and systems of work associated with diving activities.

Related topic: *see sub-element 2.3 'Sources of information (legislative and other standards'*

Reg 4.4(3) A DSMS must:
(b) require the diving to be carried out in accordance with those standards or guidelines

Guidance

Having identified the standard(s) to be used in a particular application, the DSMS must specify in its policies and/or procedures that these standards, guidelines or codes of practice must be met during any relevant diving activity.

Related topic: *see sub-element 2.3 'Sources of information (legislative and other standards'*

Reg 4.4(4) A DSMS must contain:
(a) any information that is reasonably necessary to demonstrate that the DSMS complies with these regulations

Guidance

The DSMS must specify in adequate detail how it provides for all the matters specified in the regulations. This may be achieved by utilising the DSMS concordance table.

Related topic: *see Diving Operations*

Reg 4.4(4) A DSMS must contain:
(b) a management of change system

Guidance

The diving contractor should ensure that a management of change process is in place. The changes and modifications are reviewed for hazards and additional controls are implemented to ensure risk is reduced to ALARP. The information of change should be communicated to all relevant employees and stakeholders. The DSMS must demonstrate that:

a. arrangements are in place for controlling modifications to plant, equipment, materials, practices and procedures used ion the diving contractors operations

b. arrangements are in place for controlling permanent and temporary organisational and work activity modifications and changes, and how this is communicated to relevant employees

c. procedures are established, implemented and maintained for the control of all relevant safety and risk management documents, plans, drawings and data

d. arrangements are in place for assessing health and safety implications when there is organisational or work activity changes

e. arrangements are in place for any associated changes to the Diving Project Plan.

For detailed guidance in regard to complying with this Regulation, see Section 3 of this guidance.

Related topic: *see sub-element 3.2 'Management of change'*

2.3.3. Regulation 4.5: Acceptance of new DSMS

Reg 4.5(1) If a diving contractor does not already have an accepted DSMS, the contractor must give a DSMS to NOPSEMA at least 60 days before a proposed diving project is expected to begin

Guidance

This regulation requires diving contractors to have a NOPSEMA accepted DSMS prior to conducting petroleum related diving operations. In the event the diving contractor does not have a DSMS the contractors must submit a DSMS in compliance with the provisions of regulation 4.3 and have it accepted by NOPSEMA prior to conducting any diving activities.

The requirement to submit the DSMS a minimum of 60 days prior to a proposed diving project is to ensure the regulator has sufficient time to undertake a thorough assessment of the proposed DSMS.

Reg 4.5(2) Within 60 days after receiving the DSMS, NOPSEMA must accept or reject the DSMS.

Guidance

Within 60 days of receiving a new DSMS, NOPSEMA must either:

a. accept the DSMS; or

b. reject the DSMS as being unsatisfactory in regard to failing to comply with a particular aspect of regulation 4.4, including not meeting the minimum standards set out in part 3 of these guidelines as required by subregulation 4.4 (1).

New diving contractors who are planning to prepare an initial DSMS are encouraged to contact NOPSEMA at the earliest opportunity to seek any clarifications and additional advice regarding regulatory requirements.

During an assessment, NOPSEMA will make judgements on the adequacy of the DSMS, based on the DSMS submission. If NOPSEMA is of the view that further information or clarification is necessary in order that an assessment decision can be made, it will write to the diving contractor and set out the elements for which further written information is requested.

Note: These regulations do not provide an explicit obligation on the diving contractor to respond to requests for further written information and therefore responding to such a request is voluntary on the part of the diving contractor.

Reg 4.5(3) **As soon as practical after making a decision under subregulation NOPSEMA must notify the diving contractor of its decision.**

Guidance

NOPSEMA will write to the diving contractor formally advising of the assessment decision as soon as practical after arriving at a decision.

Related topic: ***see*** *Reg 4.10 'Revision of DSMS'*

2.3.4. Regulation 4.6: Acceptance of revised DSMS

Reg 4.6(1) **If a diving contractor has revised a DSMS, the contractor must give the revised DSMS to NOPSEMA.**

Guidance

The regulations place an obligation on the diving contractor - consistent with the requirement that the DSMS must be managed for continuous improvement - to maintain the currency of the DSMS. The DSMS must be an accurate representation of the policies, standards, staffing, procedures and equipment that the diving contractor is currently using, and must be up-to-date in regard to the specific requirements of Regulation 4.10.

If the DSMS is revised for any of the reasons specified in Regulation 4.10, it must be submitted to NOPSEMA for re-assessment. Minor revisions which do not correspond to the reasons mentioned in Regulation 4.10 need not be submitted to NOPSEMA.

Reg 4.6(2) **NOPSEMA must accept or reject the DSMS within:**

(a) 28 days after receiving the revised DSMS; or

(b) another period agreed between NOPSEMA and the diving contractor

Guidance

Within 28 days after receiving a revised DSMS, NOPSEMA must either:

a. Accept the revised DSMS; or

b. Reject the revised DSMS as being unsatisfactory in regard to failing to comply with a particular aspect of the regulations or not meeting the minimum standards set out in these guidelines as required by regulation 4.4 (1), (see Regulation 4.7).

The diving contractor and NOPSEMA may agree a period other than 28 days, for example, if the revision is complex and extensive in nature and cannot be adequately assessed within 28 days.

If NOPSEMA is of the view that further information or clarification is necessary in order that an assessment decision can be made, NOPSEMA will write to the diving contractor and set out the elements for which further written information is requested.

Note: These regulations do not provide an explicit obligation on the diving contractor to respond to requests for further written information and therefore responding to such a request is voluntary on the part of the diving contractor.

Reg 4.6(3) As soon as practical after making a decision under subregulation (2), NOPSEMA must notify the diving contractor of its decision.

Guidance

NOPSEMA will write to the diving contractor formally advising of the assessment decision as soon as practical after arriving at a decision.

2.3.5. Regulation 4.7: Grounds for rejecting DSMS

Reg 4.7 NOPSEMA must reject a DSMS if:

(a) the DSMS does not adequately comply with regulation 4.4

Guidance

Regulation 4.4 sets out a number of aspects of the diving contractor's activities that the DSMS must make provision for. Section 3 of these guidelines provides further detail on complying with regulation 4.4. If the proposed DSMS does not adequately comply with any of these aspects, Regulation 4.7(a) requires NOPSEMA to reject it.

Reg 4.7 NOPSEMA must reject a DSMS if:

(b) NOPSEMA if not satisfied that there was consultation with divers and other members of the workforce in the preparation of the DSMS, as required by regulation 4.18

Guidance

Regulation 4.18 requires that the diving contractor ensure that there is effective consultation with relevant divers and other members of the workforce. In submitting the DSMS for assessment, the diving contactor must set out, in writing, details of the consultation that has taken place, including submissions or comments made during the consultation, and any changes that have been made to the DSMS as a result of

the consultation. If the diving contractor does not demonstrate to satisfaction of NOPSEMA that effective consultation has taken place, Regulation 4.7 (b) requires that NOPSEMA must reject the DSMS.

Related topic: *see Reg 4.18 'Involvement of divers and members of the workforce'*

2.3.6. Regulation 4.8: Notice of reasons

Reg 4.8(1) **If NOPSEMA decides to reject a DSMS, NOPSEMA must set out, in writing, with the notice mentioned in subregulation 4.5(2) or 4.6(2), the reasons for rejecting the DSMS.**

Reg 4.8(2) **If NOPSEMA decides to impose conditions on a DSMS, NOPSEMA must set out, in writing, with the notice mentioned in subregulation 4.5(2) or 4.6(2), the reasons for imposing conditions on the DSMS.**

Guidance

This regulation places an obligation on NOPSEMA to provide the diving contractor with reasons why the DSMS has been rejected. The decision to reject may be made without completing a full assessment and therefore the rejection letter may not necessarily detail a complete list of all the failings of the submission.

Alternatively NOPSEMA may accept the DSMS subject to certain conditions. In this case NOPSEMA must state in the acceptance letter what the conditions are and the reasons for imposing them.

This regulation could also be used if NOPSEMA wants the diving contractor to satisfy some specific requirement in relation to amending a procedure, citing or working to a particular standard, obtaining some particular piece of equipment or liaising or consulting with the workforce in regard to a particular issue or condition without delaying the acceptance of the DSMS.

2.3.7. Regulation 4.9: Register of DSMS

Reg 4.9(1) **NOPSEMA must keep a register of each DSMS and revised DSMS it receives, in a form that allows public access.**

Guidance

This regulation requires that NOPSEMA keep a register of the details of all DSMSs that have been received. The purpose of the regulation is to ensure that operators can readily satisfy the obligation on them under Regulation 4.3(2) for the diving contractor to have an accepted and current DSMS in place (which has been provided to the operator) before allowing diving work to begin.

Related topic: *see register of DSMSs and DPPs*

Reg 4.9(2) **The register must record as many of the following details as apply to the DSMS:**

(a) the name of the diving contractor

(b) the date of acceptance

(c) any conditions on acceptance

(d) the date of rejection

(e) the date that acceptance was withdrawn

(f) the date of any revision notice under regulation 4.11

Guidance

This provides that the register must detail the information necessary for the operator to determine whether or not a diving contractor has an accepted and current DSMS.

The register is located on the NOPSEMA website and is updated shortly after the completion of each assessment. It provides details of DSMSs that have been rejected and accepted including particulars of any conditions imposed on acceptance.

Related topic: *see register of DSMSs and DPPs*

Reg 4.9(3) **NOPSEMA must also record on the register, the following details for each diving project plan it receives under regulation 4.13:**

(a) the name of the diving contractor

(b) the diving project to which the diving project plan applies

(c) the proposed commencement date of the project

(g) the date of receipt of the plan.

Guidance

There may be a small number of instances where a diving contractor is undertaking an offshore diving project, subject to the Regulations, that does not involve a facility, and therefore does not involve an operator as defined by Clause 5 of Schedule 3 to the OPGGS Act. An example of these circumstances may include undertaking a diving operation on an unlicensed pipeline or a well that is in a non-producing state to retrieve debris.

In these instances, the diving operation is subject to the provisions of Regulation 4.13, which requires that the diving project plan be forwarded by the diving contractor to NOPSEMA for assessment and acceptance. NOPSEMA is then required to enter the relevant details onto the DSMS and DPP register.

Related topic: *see register of DSMSs and DPPs*

2.3.8. Regulation 4.10: Revision of DSMS

Reg 4.10 A diving contractor must revise a DSMS:

(a) if developments in scientific or technical knowledge, or in the assessment of hazards, relevant to diving projects make it appropriate to do so

Guidance

The DSMS is required by these Regulations to be an accurate record of the diving contractor's policies, practices and procedures, complying with the provisions of these regulations as per the state of knowledge and operational procedures as they were at the time the time of acceptance.

As such, the DSMS is a key aspect of the diving contractor's business management arrangements - managing for safety must be a fundamental and integral part of the business strategy, not an afterthought tacked on at the end. As required by Regulation 4.4, the DSMS must be managed for continuous improvement so that risks to persons involved with a diving project will be continuously reviewed to ensure that they are eliminated or reduced to ALARP.

This requires the constant monitoring and development of the diving contractor's policies, systems, plant and equipment and techniques. If, as a result of developments in scientific or technical knowledge, such aspects of the DSMS can reasonably be improved and the level of risk thus reduced, the DSMS must be revised incorporating such developments and maintaining ALARP.

Following such a revision, the diving contractor must submit the revised DSMS to NOPSEMA for assessment as required by regulation 4.6 (1).

Reg 4.10 A diving contractor must revise a DSMS:

(b) if the diving contractor proposes to make a significant change to the method of operation or to procedures or equipment

Guidance

As noted above, the DSMS is required by these Regulations to be an accurate record of the diving contractor's policies, practices and procedures, relating to the state of knowledge and operational procedures as they were at the time the time of acceptance. If the diving contractor proposes to make significant change to any of these aspects, the DSMS must be revised to remain in conformance with this requirement.

Reg 4.10 A diving contractor must revise a DSMS:

(c) if NOPSEMA gives notice in accordance with regulation 4.11

Guidance

Regulation 4.11 provides that NOPSEMA may require the revision of a diving contractor's DSMS by the issuing of a notice in writing upon the diving contractor. If such a notice is received, the diving contractor must undertake the revision of the DSMS as required, except if the revision is later considered unnecessary, or should be in different terms from those proposed, under provisions of Regulation 4.11(3).

Related topic: *see Reg 4.11 'Notice to revise DSMS'*

Reg 4.10 A diving contractor must revise a DSMS:

(d) if a number of minor changes result in the DSMS being significantly different from the latest version of the DSMS accepted by NOPSEMA

Guidance

As noted above, the DSMS is required by these Regulations to be an accurate record of the diving contractor's policies, practices and procedures, relating to the state of knowledge and operational procedures as they were at the time the time of acceptance.

It is likely that the diving contractor will over time make small changes to policies, items of equipment, procedures and practices. This is expected in the interests of achieving a program of continuous improvement however these, in themselves, may not warrant a formal revision of the DSMS. However, the cumulative effect of these small individual changes means that the DSMS ceases to be an accurate representation of the DSMS as accepted by NOPSEMA, it must be revised and submitted to NOPSEMA.

The diving contractor should maintain a register of minor changes to be reviewed each time a minor change is made, to consider whether the cumulative effect warrants a formal revision of the DSMS.

Reg 4.10 A diving contractor must revise a DSMS:

(e) at the end of each period of five years commencing on the later of:

(i) the date when the DSMS is first accepted by NOPSEMA

(ii) the date of the most recent acceptance by NOPSEMA of a revised version of the DSMS.

Guidance

As noted above, the DSMS is required by these Regulations to be an accurate record of the diving contractor's policies, practices and procedures, relating to the state of knowledge and operational procedures as they were at the time the time of acceptance. If the DSMS ceases to be such an accurate representation, it must be revised to remain in compliance with this requirement.

This regulation is a reflection of the reality that over a five year period, sufficient changes are likely to occur in the organisation's policy, operational, technical and legal environment. In these circumstances a revision of the DSMS will be required to ensure it complies with the requirements of the regulations.

The five year period is to be calculated from the most recent date that it has been accepted by NOPSEMA – i.e. taking into account the following circumstances:

a. if the DSMS has not, since the date when it was first accepted by NOPSEMA, subsequently been revised, re-submitted and accepted by NOPSEMA, from the date of its first acceptance

b. if it has since its date of first acceptance, subsequently on one or more occasion, been revised and re-accepted - from the date that it was most recently accepted.

It should be understood, however, that this is not a mandatory requirement to change any or all of the provisions of the DSMS. On top of and complementing the diving contractor's continuous improvement process, this mandatory revision of the DSMS should be regarded an opportunity to consider in detail the organisation's policies, standards, equipment, practices and procedures as compared with those detailed in the accepted DSMS.

2.3.9. Regulation 4.11: Notice to revise DSMS

Reg 4.11(1) NOPSEMA may give a revision notice to a diving contractor to revise a DSMS.

Guidance

This regulation gives NOPSEMA authority to require the revision of a diving contractor's DSMS by the issuing of a notice in writing upon the diving contractor.

Such a mandatory revision may be required by NOPSEMA for a number of reasons, for example:

a. The notice may reflect NOPSEMA's concerns in regard to some aspect of the general diving operational environment, such as deficiencies being identified in relation to particular diving procedures or standards resulting from an inspection, an accident or incident, or equipment malfunctions as advised by manufacturers.

b. It could be that the expectations in regard to acceptable risk acceptance criteria have become less tolerant over time and NOPSEMA requires that the DSMS be revised in keeping with these expectations.

c. If NOPSEMA has identified that a diving contractor has deviated from the accepted DSMS but not revised it, NOPSEMA may use this provision to ensure the DSMS is brought up to date with current working practices and/or procedures.

Reg 4.11(2) A revision notice must be in writing and must set out:

(a) the matters to be revised

(b) the time within which the revision must be completed

(c) the reasons why the revision is necessary.

Guidance

When requiring a DSMS revision, NOPSEMA is required to issue a notice in writing to the diving contractor. The notice must set out the details regarding the required revision, including what has to be revised and why, and including the date by which it must be submitted to NOPSEMA.

Reg 4.11(3) The diving contractor may make a submission in writing to NOPSEMA within 21 days after receiving the notice or any longer period that NOPSEMA allows in writing, setting out the contractor's reasons for any of the following:

(a) why the revision is not necessary

(b) why the revision should be in different terms from those proposed

(c) whether or not the contractor gives other reasons — why the notice should take effect on a later date than NOPSEMA set out in the notice.

Guidance

Having received a revision notice from NOPSEMA requiring that the diving contractor's DSMS be revised, the diving contractor may write to NOPSEMA requesting a variation or withdrawal of the revision notice. The diving contractor may set out the diving contractor's reasons why the revision:

a. should not take place at all; or

b. should take place in a different form to that required by NOPSEMA in the notice; or

c. should take place at a date later than that required by NOPSEMA in the notice.

The variation request submission to NOPSEMA must be made:

a. within 21 days of having received the original notice; or

b. if NOPSEMA agrees, in writing to the diving contractor, such other time as may be arranged.

Reg 4.11(4) **If a contractor makes a submission under subsection (3), NOPSEMA must, within 28 days after receiving the submission:**

(a) decide whether the NOPSEMA accepts the reasons in the submission

(b) give the contractor notice in writing affirming, varying or withdrawing the revision notice

(c) if NOPSEMA decides not to accept the reasons or any part of them — set out in this notice the grounds for not accepting them.

Guidance

This subregulation places a responsibility on NOPSEMA to make a decision regarding any submission made under subregulation (3) above by the contractor. The decision whether to reject the reasons in the submission, giving the contractor notice affirming, varying or withdrawing a revision notice must be provided to the diving contractor within 28 days after NOPSEMA receives the submission.

If NOPSEMA decides not to accept the reasons, or any part of them, NOPSEMA must provide written notice to the diving contract, setting out the reason(s) for this decision.

Reg 4.11(5) **The contractor must revise the DSMS, in accordance with the notice as originally given or as varied under subregulation (4), and submit it to NOPSEMA**

Guidance

This subregulation requires the diving contractor to comply with NOPSEMA's direction in regard to revising the DSMS under regulation 4.11 (whether this is in accordance with the original notice from NOPSEMA under subregulation (1) or as varied under subregulation (4)).

Reg 4.11(6) **If the contractor does not revise a DSMS when required by this regulation to do so, NOPSEMA may withdraw its acceptance of the DSMS or its agreement to the use of the DSMS for the project**

Guidance

If, after having received a notice in writing from NOPSEMA in accordance with the original notice from NOPSEMA (under subregulation (1) or as varied under subregulation (4) above) the diving contractor does not undertake the revision in the manner requested, NOPSEMA may withdraw its acceptance of the DSMS.

In accordance with regulation 4.3 (2) and (3), if NOPSEMA withdraws acceptance of the DSMS under regulation 4.11(6), the diving contractor (and the operator, if one is involved) is required to ensure that:

a. diving is not undertaken; or

b. if diving is being undertaken, it ceases immediately.

2.4. Diving Project Plans

2.4.1. Regulation 4.12: Diving project plan to be approved

Reg 4.12(1) This regulation applies if there is an operator for a diving project

Guidance

This regulation applies where the diving contractor is undertaking work, either directly for an operator or as a subcontractor through a principal contractor to the operator.

Related topic: *see Glossary of Terms for meaning of 'operator' in the context of diving operations*

Reg 4.12(2) The diving contractor must prepare a diving project plan for each diving project in consultation with the operator for the project

Guidance

The diving project plan is the detailed plan developed to undertake a specific diving project. It forms the bridging document between the operator's safety case and the diving contractor's DSMS. The DPP must therefore identify, assess and document the controls for all hazards associated with the diving project. It must also provide contingency procedures for any foreseeable emergency, including retrieving injured and unconscious divers from the water.

Regulation 4.12 of the Regulations requires that the operator of the facility on which the diving work is being conducted is involved in the preparation of the DPP. This recognises the significance of operator input, as the owner of the facility based risks and the related facility safety case. This also applies to all other relevant parties involved in the diving project.

This consultation process should identify any conflicts between the DSMS and the other SMS documents involved (for example, as described in the facility safety case). Typical examples might include:

- SIMOPs
- Permit to work systems

- Emergency arrangements.

Where conflicts exist, the DPP should state which of the systems or processes are to be used for a particular project.

Related topic: *see FM1453 DPP Concordance Table on NOPSEMA website*

Reg 4.12(3) **The diving project plan must be approved by the operator for the project before diving can commence on the project.**

Reg 4.12(4) **The operator must not approve the diving project plan unless the operator is satisfied that:**

(a) the plan complies with regulation 4.16

(b) there was effective consultation in the preparation of the plan, as required by regulation 4.18

Guidance

The operator of the facility on which the diving work is being conducted must approve the diving project plan before diving operations can commence. The operator must ensure that the contents of the plan meet the requirements of Regulation 4.16 before approving the plan.

Operators are encouraged to utilise the DPP concordance table, as it has been designed to demonstrate which section(s) address the content requirements of Regulation 4.16. Utilising the DPP concordance table, as part of their DPP review and approvals process, may assist the operator in providing a 'road map' to which section(s) of the DPP address the regulatory requirements.

The operator must ensure that there was effective consultation with the divers and members of the workforce in development of the diving project plan, in accordance with regulation 4.18. The diving contractor must therefore be able to demonstrate to the operator that there was effective consultation with members of the workforce in development of the DPP.

Related topic: *see Reg 4.16 'Contents of diving project plans'*
see Reg 4.18 'Involvement of divers and members of the workforce'
see FM1453 DPP Concordance Table on NOPSEMA website

2.4.2. Regulation 4.13: Diving project plan to NOPSEMA if there is no operator

Reg 4.13(1) **This regulation applies if there is no operator for a diving project.**

Guidance

There may be a small number of instances where a diving contractor undertakes an offshore diving contract subject to the Regulations that does not involve an operator or a facility as defined by Clause 3 of Schedule 3 to the OPGGS Act. Examples may include:

a. a diving operation on a well that is in a non-producing state to retrieve debris; or

b. diving support provided for seismic survey operations conducted on an exploration licence.

Reg 4.13(2) The diving contractor must prepare a diving project plan for the diving project and give a copy of the plan to NOPSEMA.

Guidance

The diving contractor prepares the DPP in conjunction with any other relevant parties to the diving project, in particular those who commission the scope of work and/or have relevant hazard information. The completed plan is submitted to NOPSEMA for review. This review process involves a 14 day assessment period.

See NOPSEMA guideline N-04000-GL0225:

"Making Submissions to NOPSEMA"

Reg 4.13(3) NOPSEMA must not accept the diving project plan unless it is satisfied that:

(a) the plan complies with regulation 4.16

(b) there was effective consultation in the preparation of the plan, as required by regulation 4.18

Guidance

NOPSEMA will not accept a DPP if the contents do not meet the requirements of Regulation 4.16. As NOPSEMA will have had little or no prior knowledge of the diving project, the review is likely to involve dialogue with the diving contractor and/or the project client so that the appropriateness of DPP contents can be determined.

Additionally, the diving contractor must be able to demonstrate to NOPSEMA that there was effective consultation with divers and members of the workforce in development of the DPP. Examples of effective consultation might include details of the persons involved, including their roles and responsibilities, together with any outcomes arising from their involvement.

Note: The transitory nature of the diving workforce is acknowledged and may make this requirement a challenge for some diving contractors. However, as a minimum there should be consultation with, and participation of, the diving supervisor/s and ideally divers who will, or may be involved in the diving project.

Reg 4.13(3) NOPSEMA must not accept the diving project plan unless it is satisfied that:

(c) the diving operations to which the plan relates are appropriate to be covered by a single plan.

Guidance

The word 'appropriate' in this subregulation relates to the scope of the diving project in terms of location and duration, and the extent to which site and project specific hazards and associated risks can be effectively managed by a single DPP.

For example, a DPP that aims to provide for diving operations that are at a number of different facilities or locations that are geographically displaced, especially where there are hazards that are unique to the location or specific facility would be to effectively manage risk in the way that the DPP is designed to operate and would therefore not be considered appropriate. Where the above factors apply the proposed work should be broken down into a number of appropriately located projects, each requiring a separate DPP.

2.4.3. Regulation 4.14: Diving project plan to NOPSEMA if requested

Reg 4.14 If NOPSEMA asks the operator for a diving project for a copy of the diving project plan, the operator must give a copy of the plan to NOPSEMA.

Guidance

If requested to do so the operator must submit the latest revision of the operator approved DPP to NOPSEMA. In this instance NOPSEMA will make the request in writing to the operator. The DPP can be requested for a number of reasons, but typically this provision is used when NOPSEMA is considering undertaking an inspection of the diving project. Having received the DPP, NOPSEMA will use the document to assist in the planning of the inspection.

Note: NOPSEMA does not assess, accept, or in any way approve the DPP, as this remains the responsibility of the operator for the project as required by regulation 4.12, except in circumstances where there is no operator, as detailed above under regulation 4.13.

2.4.4. Regulation 4.15: Updating diving project plan

Reg 4.15(1) A diving contractor for a diving project must keep the diving project plan for the project up to date during the project

Guidance

Changes to the diving project plan must be incorporated into the latest revision of the plan under management of change procedures to ensure risks remain ALARP. Any revision must be conducted in consultation with the operator who has the ultimate responsibility for approving the revised DPP.

Additionally, in accordance with Regulation 4.18, any revision must involve consultation with divers and other members of the workforce, as appropriate.

Related topic: *see Reg 4.18 'Involvement of divers and members of the workforce'*

Reg 4.15(2) **The diving contractor must update the diving project plan if:**

(a) because of modification of the project, there is a significant increase in the overall level of risk to a diving operation

(b) the operator for the project proposes to undertake or permit a modification of the project that might influence significantly the level of specific risks to a diving operation or the ranking of risk contributors.

Guidance

If there is a significant change in the level of risk for any reason, the contributing factors and any additional controls to mitigate the risk must be incorporated into a revised DPP.

If the diving contractor changes the DPP, it must be revised with the knowledge and approval of the operator.

Reg 4.15(3) **If there is no operator for a diving project and the diving project plan has been updated, the diving contractor must resubmit the updated plan to NOPSEMA for consideration.**

Guidance

Where there is no operator for the project the diving project plan must be submitted to NOPSEMA in accordance with Regulation 4.13.

Related topic: *see Reg 4.13 'Diving project plan to NOPSEMA if there is no operator'*

2.4.5. Regulation 4.16: Contents of diving project plan

NOPSEMA has provided a Diving Project Plan (DPP) concordance table on its website as a tool to assist Diving Contractors and operators of diving projects to ensure that they have met the DPP contents requirements of the regulations.

Reg 4.16(1) **A diving project plan must set out the following matters:**

(a) a description of the work to be done

Guidance

The diving project plan must cover the entire scope of work of the project and general principles of the diving techniques to be used, for example:

- location of diving activities (host facility)
- the scope of work
- diving techniques to be used

- project-specific work methodologies and procedures.

Reg 4.16(1) A diving project plan must set out the following matters:

(b) a list of the Commonwealth, and State or Territory, legislation (including these regulations) that the diving contractor considers applies to the project

Guidance

This Regulation requires that the Acts and Regulations applicable to the area of operation are detailed in the DPP.

Related topic: *see 'Legislation and Regulations'*

Reg 4.16(1) A diving project plan must set out the following matters:

(c) a list of standards and codes of practice that will be applied in carrying out the project.

Guidance

Typically this would include standards and guidelines identified in the contractor's DSMS and specific guidelines or standards used in the project, for example:

a. IMCA guidelines applicable to all hyperbaric systems and diving activities to be conducted
b. class society certifications and IMO codes for vessels and diving systems
c. codes and standards applicable to safety-critical equipment and project personnel training
d. other published good industry practice.

Related topic: *see Key Element 3.0 'Implementation'*
see sub-element 2.3 'Sources of information' (legislation and other standards)

Reg 4.16(1) A diving project plan must set out the following matters:

(d) hazard identification

Guidance

The DPP must detail the hazards that have been identified in relation to the diving project.

This may include, for example, a hazard register containing the diving generic and site-specific hazards, such as:

- diving hazards identified in the DSMS

- diving related MAEs identified in the host facility safety case
- diving related MAEs identified in the DSV safety case (if applicable)
- project-specific hazards

A hazard is something (e.g. an object, substance, material, source of energy, condition, process or an activity) that can cause damage, harm or adverse health effects to someone.

The diving contractor's DSMS will need to demonstrate that appropriate policies, standards and procedures are in place for the systematic identification, assessment and control of hazards. These should be fully implemented in the preparation and any subsequent revision of the DPP.

There are many and varied potential hazards associated with diving and the offshore diving workplace. All diving projects will have both generic and site-specific hazards.

The DPP must detail the hazards that have been identified in relation to the diving project. For example:

a. diving generic and site-specific hazards
b. diving hazards identified in the DSMS
c. diving related major accident events (MAEs) identified in the host facility safety case
d. diving related MAEs identified in the DSV safety case (if applicable)
e. diving related MAEs identified in any other safety case related to the project
f. project-specific hazards.

Some examples of hazards are given below. This is not a complete list of all hazards or all measures needed to control risk. In special circumstances, or if certain contingencies arise, more stringent safeguards may be needed. Consideration should be given to the following.

Physiological effects:

a. Toxic effects of air or gas mixtures from nitrogen narcosis or oxygen toxicity
b. Decompression illness from failure to control exposure limits for surface-orientated diving. Industry good practice generally sets defined exposure limits to be applied to the maximum bottom times for air or nitrox diving using surface supplied techniques.
c. Details of any possible substance likely to be encountered by the dive team that would be a hazard to their health. This could include for example:
    i. drill cuttings on the seabed
    ii. effluent contamination of the area
    iii. potential contamination with naturally occurring radioactive material etc.

Physical Environment:

a. diving in the vicinity of water-flow, intakes and discharges
b. restricted surface visibility
c. underwater currents
d. diving near remotely operated vehicle operations

e. diving from dynamically positioned vessels.

Procedural:

a. Language barriers

b. Familiarization with procedures, equipment and project.

Power tools:

a. electricity

b. high-pressure water jetting

c. lift bags

d. abrasive cutting discs

e. oxy-arc cutting and burning operations.

Breathing gases:

a. quantity of gases

b. quality of gases

c. levels of oxygen in helium and nitrogen

d. contents of gas mixes.

Saturation diving:

a. lost closed bell contingency plan

b. hyperbaric evacuation

c. length of diver's umbilical

d. transfer under pressure

e. duration of saturation exposure.

Medical and physiological considerations:

a. liaison with a doctor

b. treatment of patients in a hyperbaric chamber

c. diver monitoring

d. adjacent noisy operations

e. seismic operations and sonar transmissions

f. decompression illness

g. altitude changes

h. thermal stress.

Reg 4.16(1) A diving project plan must set out the following matters:

(e) a risk assessment

Guidance

Based on this information, the DPP must describe how the associated risks will be controlled. The diving project plan may include a diving contractor's standard operating rules, including generic risk assessments, but must ensure that the actual risks arising from the particular project are assessed and controlled. All documents should show the date of preparation.

The DPP should record the outcome of the planning carried out in preparing the risk assessment, including all information and instructions which, so far as is reasonably practicable, are necessary to protect the health and safety of all those taking part in the diving project.

As a matter of safe working practice, the project risk assessment should be reviewed at regular intervals, even if the risk is minimal, to ensure that the risk assessment is still adequate and does not need to be revised. The DPP should therefore include a reference to procedures for conducting reviews of the site and updating the specific risk assessments as necessary.

For example:

a. a documented assessment of the project-specific hazards and implemented control measures

b. includes risks associated with emergency response and hyperbaric evacuation systems

c. includes procedures for conducting onsite reviews and updating the risk assessments.

Reg 4.16(1) A diving project plan must set out the following matters:

(f) a safety management plan

Guidance

The DPP must set out the safety management plan, which makes clear how project specific PTW and SIMOPs systems are to be managed and the procedures that are in operation. Where this involves training related to third party systems, this should also be detailed in the DPP.

Reg 4.16(1) A diving project plan must set out the following matters:

(g) job hazard analyses for the diving operation

Guidance

The DPP should describe how the project will provide for job hazard analyses (JHA) for the diving operation.

JHAs must involve members of the workforce and encompass the activities associated with each operation. As a minimum requirement all those involved in an activity should understand the JHA findings, before undertaking the task.

Reg 4.16(1) A diving project plan must set out the following matters:

(h) an emergency response plan

Guidance

The emergency response plan should be project / location specific and reflect the combined diving contractor / operator / diving vessel procedures (as applicable). There are likely to be differences in the provisions for emergency response within the operator's safety case, diving vessel SMS and the DSMS.

Selection of the arrangements to be used must be discussed and agreed with all relevant parties and the outcomes must be made clear in the DPP.

The emergency response plan should:

- have clear contents and directions for use
- contain up to date names and contact numbers for key positions (personnel) and organisations
- clearly show the chain of command and lines of communication to be put in place during an emergency
- define the responsibilities of essential personnel and outline the basic procedures for responding to emergencies
- ensure all relevant personnel and organisations are kept informed of the plan and any updates
- demonstrate that all potential emergencies are identified and procedures and facilities exist for mitigating their effects. The demonstration should indicate:
    - the offshore command structure to manage the emergency response on the diving project
    - the onshore command structure to co-ordinate and support the emergency response on the diving project
    - the roles and responsibilities of all key employees associated with the execution of the emergency response plan
    - how all parties, including external agencies, are consulted regarding the execution of emergency response actions for example onshore office, police, maritime agencies and other emergency services
    - how conflicting demands are managed where services and equipment of one contractor are shared by a number of diving contractors, for example emergency and rescue equipment
    - the procedures for issuing and maintenance of safety equipment, emergency equipment and specialised tools
    - the procedures in place for search, rescue and recovery operations
    - the availability of sufficient numbers of competent emergency trained response team personnel at all times
    - the procedures for accounting for all personnel on board in an emergency
    - a schedule of regular emergency drills and exercises are conducted for each emergency scenario.
- The diving contractor should demonstrate how:
    - emergency equipment is fit for purpose, available at appropriate locations and accessible. The demonstration should indicate contingencies in the event of damage/loss or the unavailability of equipment, for example life boats
    - emergency equipment, exit signs and alarm systems are inspected, tested and maintained at regular intervals

- the effectiveness of the emergency response system is periodically assessed, reviewed and improved.

Hyperbaric evacuation

In an emergency, divers in saturation cannot be evacuated by the same methods as other crew members. Special arrangements and procedures should be made to evacuate them safely while keeping them under pressure, for example in a chamber or lifeboat capable of being removed from the worksite to a safe location while maintaining life support for such time as has been determined in the project risk assessment.

The exact design of such equipment and its method of deployment will depend on a number of factors including the facilities available, the number of divers to be evacuated and the location of the worksite relevant to other support facilities.

Where there is a contingency for the lifting hyperbaric rescue chamber or a hyperbaric lifeboat onto support vessels such as a hyperbaric rescue vessel or a platform there must be an engineering assessment of the adequacy of the proposed lifting system and a risk assessment of the operation.

Additional safety requirements may be necessary for those personnel conducting the evacuation.

Reg 4.16(1) A diving project plan must set out the following matters:

(i) a provision of the DSMS and the safety case that are relevant to the diving project, in particular the arrangements in the DSMS and the safety case for simultaneous operations and emergency response

Guidance

The DPP is the detailed plan developed to undertake a specific diving project. It must take into account the specific requirements of the particular diving job and dive site and, where relevant, must form the bridging document between the various safety management systems that may be involved in a single project (for example, where diving is occurring on a pipeline that is connected to a platform facility).

The DPP must set out the provisions in the DSMS and safety case where they are relevant to the diving project. It is possible that some of the provisions will be common to more than one document, in which case there is potential for differences. Where SMS processes are in conflict, in particular those relating to simultaneous operations, PTW and emergency response, they must be discussed with the relevant parties and an agreement must be reached on the processes to be followed. The outcomes relating to the processes to be followed must be made clear in the DPP.

Reg 4.16(1) A diving project plan must set out the following matters:

(j) details of consultation with divers and other members of the workforce working on the project.

Guidance

Regulation 4.18 requires the involvement of divers and other members of the workforce in the development and revision of the diving project plan.

The DPP must provide details of the consultation that has taken place with divers and other members of the workforce who are involved in the diving project.

The Regulations are based on a fundamental premise that the workforce must be involved in the process of managing the risks to which they are subjected. In relation to diving projects, this involvement should typically include some of the diving contractor's more regular supervisory and diving personnel, who would provide input, review the document and provide feedback as necessary.

With regard to workforce involvement, it is understood and accepted that the diving workforce is often transient in nature and therefore offshore diving contractors often employ part-time diving personnel, making it a challenge to involve all members of the workforce in the consultation process. However, as a minimum requirement there should be consultation with, and participation of, the diving supervisor(s) and ideally the divers who will, or may be involved in, the diving project.

The degree of employee involvement, however, should be commensurate with the project duration and complexity. The larger and/or more complicated the project, the greater the range of operational personnel that should be involved.

Diving contractors should develop a process to ensure the workforce involvement is genuine and effective.

Related topic: *see Reg 4.18 'Involvement of divers and members of the workforce'*

Reg 4.16(2) The diving project plan must describe each diving operation that is part of the diving project.

Guidance

All planned diving operations shall be identified in the project plan. Within a diving project, diving operations can be made up of a number of dives or even a single dive. A diving operation is the portion of a diving project that can be supervised safely by one supervisor (see regulation 4.16 (3)).

Related topic: *see Definitions: 'Diving project' and 'Diving operations'*

Reg 4.16(3) The diving project plan must not specify as a diving operation a task that is too complex, or too big, to be supervised safely by 1 supervisor.

Guidance

For each diving project, the diving contractor must evaluate how much of the project can be supervised safely by one person. Enough supervisors must be appointed to cover the entire diving project. For example, if a diving project involves three of more divers in the water at any one time, or divers working at different depths that cannot be safely controlled by one supervisor, such projects should be divided into separate diving operations with further supervisors being appointed as necessary.

The diving contractor must appoint the supervisor in writing. When more than one supervisor is on duty at the same time the diving contractor should specify in the diving project plan the areas and duration of the

project that are controlled by each supervisor. In particular, each supervisor must have immediate overriding control of all safety aspects for the diving operation for which he or she is appointed. The diving contractor may also need to provide a management structure in the DPP. When a supervisor hands over supervisory responsibilities to another supervisor, this should be recorded in the diving operation record.

During a continuous saturation diving project it is good industry practice to have two supervisors on shift at any one time to provide for appropriate shift and mid bell run handovers, and to act as relief for one another. The name of the supervisor in control should be recorded in the diving operation record with hand-overs for comfort breaks or other purposes also recorded.

The supervisor has a duty to direct the diving operation safely. If a supervisor does not agree with the size or complexity of the portion of the diving project allocated as his or her operation to supervise, the supervisor should raise the matter with the diving contractor. A supervisor should not participate in a diving operation that he or she considers to be unsafe.

Reg 4.16(4) **The diving project plan must provide for adequate communications between persons undertaking the project and any relevant:**

(a) contractor; and

(b) facility; and

(c) vessel or aircraft; and

(d) on-shore installation.

Guidance

There must be established communication links between project sites, facilities and vessels and aircraft. There must be arrangements for alternative communications links in the event of an emergency. Links to shore must be provided for emergency response coordination and response.

2.4.6. Regulation 4.17: No diving without an approved Diving Project Plan

Reg 4.17(1) **A diving contractor for a project must not allow a person to dive on the project if:**

(a) there is no diving project plan for the project

Guidance

All diving operations shall have a DPP prepared by the diving contractor in conjunction with the operator (where there is one) and any other relevant parties.

Reg 4.17(1) **A diving contractor for a project must not allow a person to dive on the project if:**

(b) the diving project plan has not been approved by the operator or accepted by NOPSEMA if there is no operator

Penalty: 50 penalty units

Guidance

All diving operations shall have a DPP prepared by the diving contractor. If the project is conducted for an operator, the plan must be developed in conjunction with the operator. The operator must approve the plan before diving may commence.

If there is no operator the plan must be submitted to NOPSEMA for review. If the plan meets the requirements of the regulations NOPSEMA will accept the plan.

Diving may not commence unless the plan is approved by the operator or accepted by NOPSEMA. If the DPP is to be revised the operator must approve (or NOPSEMA must accept) any proposed revision of the DPP.

Reg 4.17(2) Strict liability applies to paragraphs (1)(a) and (b)

Guidance

See section 2.3.1 for guidance on the meaning of strict liability.

2.5. Involvement of divers and members of the workforce

2.5.1. Regulation 4.18: Involvement of divers and members of the workforce in DSMS and diving project plan

Reg 4.18(1) In developing or revising a DSMS or diving project plan, a diving contractor must ensure that there is effective consultation with, and participation of, divers and other members of the workforce who will, or may be, working on:

(a) the project, or

(b) in the case of a DSMS – projects for which a DSMS would be appropriate.

Guidance

The Regulations are based on a fundamental premise that members of the workforce must be involved in the process of managing the risks to which they are subjected. In relation to diving projects, this involvement should typically include some of the diving contractor's more regular supervisory and diving personnel, who would provide input and review the relevant documents, providing feedback as necessary.

Workforce involvement is a requirement under the regulations for the development of a DSMS and a DPP. In order for any safety management system (SMS) to function effectively, active workforce involvement is also crucial in the formulation and implementation of the system. SMS's prepared without workforce involvement will be far less effective in the development process.

With regard to workforce involvement, it is understood and accepted that the diving workforce is often transient in nature and therefore diving contractors often employ part-time diving personnel, making it a challenge to involve members of the workforce in the consultation process. However, as a minimum requirement there should be consultation with, and participation of, the diving supervisor(s) and ideally the divers who will or may be involved in the diving project. The degree of employee involvement, however, should be commensurate with the project duration and complexity. The larger and/or more complicated the project, the greater the range of operational personnel that should be involved. Diving contractors should develop a process to ensure the workforce involvement is genuine and effective.

Reg 4.18(2) When submitting a DSMS to NOPSEMA for acceptance, the diving contractor must set out in writing details of the consultation that has taken place, including:

(a) submission of comments made during the consultation; and

(b) any changes that have been made to the DSMS as a result of the consultation.

Guidance

This requirement is a reflection of the seriousness of these regulations in regard to the members of the workforce consultation process. The diving contractor is required to document in the DSMS the details of the consultation that has taken place. This should include the details of:

a. the members of the workforce consulted, their roles, and their relevance to the DSMS

b. details of any submissions or substantive comments relevant to the development of the DSMS made during the process

c. any changes (including the addition of new material) made to the DSMS as a result of the consultation.

2.6. Safety responsibilities

2.6.1. Regulation 4.19: Safety responsibilities of diving contractors

Reg 4.19(1) **A diving contractor must take all necessary steps to provide and maintain a working environment (including equipment and systems of work) that reduces risks to the safety and health of divers and other members of the workforce to as low as reasonably practicable.**

Guidance

The diving contractor's general responsibilities are to ensure that:

a. the diving project is properly and safely managed

b. suitable and sufficient risk assessments have been carried out and the results recorded

c. the place from which the diving is to be carried out is suitable and safe, including the selection and suitability of the diving vessel and its support services and systems (i.e. vessel assurance) where applicable

d. diving is conducted in accordance with a NOPSEMA accepted and current DSMS

e. a suitable diving project plan is prepared which includes emergency and contingency plans. The diving project plan should be dated and authorised by a responsible person acting on behalf of the diving contractor

f. the supervisor and dive team are fully briefed on the project and aware of the contents of the diving project plan

g. there are sufficient personnel in the dive team to enable the diving project to be carried out safely

h. the personnel are qualified and competent

i. supervisors are appointed in writing and the extent of their control fully documented

j. a suitable mobilisation and familiarisation program is completed by all the members of the dive team. Other personnel involved in the diving project, for example ship's crew, may also need to complete the program

k. adequate arrangements exist for first aid and medical treatment

l. suitable and sufficient plant is provided and that it is correctly certified and maintained (see sections 'Diving plant and equipment')

m. the divers are medically fit to dive

n. diving project records are kept

o. there is a clear reporting and responsibility structure laid down in writing

p. all other relevant regulations are complied with.

Diving plant and equipment

The operator must ensure that their selected diving plant is sufficient and suitable for the use to which it will be put. Further, the diving contractor must have available sufficient plant, whenever needed, which is suitable to carry out safely any action which may need to be taken in a reasonably foreseeable emergency.

Suitability can be assessed by the evaluation by a competent person, clear instructions or statements from the manufacturer or supplier, physical testing or previous use in similar circumstances. All items of equipment worn by the diver should, wherever possible, comply with Australian or international standards.

Diving on or close to facilities producing hydrocarbons from a vessel introduces hazards to the personnel involved in diving. These hazards and the controls are identified in the facility safety case. NOPSEMA has published a guidance note for 'Vessel Facilities subject to external hydrocarbon hazard'. The diving contractor needs to be aware of these controls as it will have an impact on the modular diving systems provided by the contractor, e.g. Ex rated equipment, emergency shutdown.

Deck chambers

The diving contractor should consider the following:

a. living chambers used for saturation diving must be of a sufficient size to cater for the occupants. Typically this would mean a minimum diameter of two metres.

b. a two-person two-compartment chamber at the worksite to provide suitable therapeutic recompression treatment should be provided for all diving projects within the scope of this guideline.

c. can the chamber be used for the task for which it is intended? Could first aid, including CPR be performed in the chamber?

d. for surface supplied diving operations it is expected that chambers would be twin–lock design, fitted with BIBS for use with oxygen and/or gas mixes) and of a minimum diameter of 1.5 metres.

e. chambers should be equipped with environmental monitoring and control suitable for the intended purpose.

Gases

Gases stored in high-pressure cylinders are hazardous. Gas storage areas should be adequately protected, for example by the provision of fire deluge systems. Gases used for diving should be handled with appropriate care.

Gas cylinders should be suitable in design, fit for purpose and safe for use. Each cylinder should be tested and have appropriate certification issued by a competent person. Cylinders used for diving may be subjected to special conditions, for example being used underwater, and therefore need special care.

Accidents have occurred because of wrong gases or gas mixtures being used in a diving project. The diving contractor should ensure that all gas storage units comply with the Australian or international standards of colour-coding and marking of gas storage cylinders, quads and banks. Whatever standard is employed it should be consistent across the project and readily identifiable. Where appropriate, pipe work should also be colour-coded.

Diver's breathing gas supply systems

The diving contractor should consider the following:

a. each diver's breathing gas should be of the correct composition, quality, temperature and flow for all foreseeable situations. This includes independent primary and secondary supplies. Gas supplies should be arranged so that interruption of supplies to one diver will not affect other divers' supplies.

b. whatever type of breathing apparatus is in use, each diver must carry an independent reserve supply (bail-out bottle) of breathing gas that can be quickly switched to the breathing circuit in an emergency. This should have sufficient capacity to allow the diver to reach a place of safety.

c. an on-line oxygen analyser with a suitable alarm, for example an audible hi-lo alarm, should be fitted to the diver's gas supply line in the dive control area, even if the breathing medium is compressed air. This will assist in preventing the diver being supplied with the wrong percentage of oxygen. In addition, a carbon dioxide analyser with a suitable alarm should be fitted in all saturation diving projects using gas reclaim plant.

When a diving basket is used by surface-supplied divers, emergency breathing gas cylinders should be supplied in the basket in a standard layout. This allows divers to access the cylinders rapidly in an emergency.

Oxygen

Pressurised oxygen can aid a serious fire or cause an explosion; it must therefore be stored and handled correctly. Any gas mixture containing more than 25% oxygen by volume should be handled as if it were pure oxygen.

Any materials used in plant intended to carry oxygen should be cleaned of hydrocarbons to avoid explosions. The diving contractor should provide formal cleaning procedures for such plant together with written confirmation that such procedures have been followed.

Communications

All divers in the water require a communication system that allows direct voice contact with the supervisor on the surface. A speech processing system is required for divers who are breathing gas mixtures containing helium because it distorts speech.

All such communications should be recorded, and the recording kept until 48 hours after the diver has returned to the surface or the saturation living chamber. If an incident occurs during the dive, the communication record should be retained for any subsequent investigation.

Closed diving bells

Divers should be able to enter and leave the bell without difficulty, and it should be possible to recover an unconscious diver in an emergency. Divers should also be able to transfer under pressure from the bell to a surface compression chamber and vice versa. The bell requires:

a. doors that can be opened from either side and act as pressure seals
b. valves, gauges and other fittings (made of suitable materials) to indicate and control the pressure within the bell. The external pressure will also need to be indicated to both the divers in the bell and the supervisor at the surface
c. adequate equipment, including reserve facilities, to supply an appropriate breathing mixture to divers in and working from the bell
d. equipment to light and heat the bell
e. adequate life support system for the number of occupants
f. communications should include hard wired communications, call button, sound powered and through water communications for emergencies
g. adequate first-aid equipment, and lifting plant, to enable a person in the bell to lift an unconscious or injured diver into the bell
h. lifting gear to lower the bell to the depth of the diving project, maintain it at that depth, and raise it to the surface, without the occurrence of excessive lateral, vertical or rotational movement.

The main umbilical system of a diving bell should be fitted with suitable protective devices that will prevent uncontrolled loss of the atmosphere inside the diving bell if any or all of the components in the umbilical are ruptured.

Emergency recovery

The diving contractor should consider the following:

a. plant and procedures should be provided to enable the diving bell to be rescued if the bell is accidentally severed from its lifting wires and supply umbilical.
b. the bell should be equipped with a relocation device using the International Maritime Organisation (IMO) agreement recognised frequency to enable rapid location if the bell is lost.
c. the bell should be capable of sustaining the lives of trapped divers for at least 24 hours.
d. the bell will require an alternative method for returning to the surface if the main lifting gear fails. If weight-shedding is employed, the weights should be designed so that the divers inside the bell can shed them. This design should also ensure that the weights cannot be shed accidentally.
e. emergency markings on hyperbaric rescue systems.

f. in an emergency, it is possible that personnel with no specialised diving knowledge will be the first to reach a hyperbaric rescue system. To ensure that rescuers provide suitable assistance and do not accidentally compromise the safety of the occupants, an IMO standard set of markings and instructions has been agreed. Such markings should be clearly visible when the system is afloat.

Medical equipment

A minimum amount of medical equipment is required at a diving site to provide first aid and medical treatment for the dive team. This minimum will depend on the type of diving and what is agreed with the diving contractor's medical adviser.

Particular problems exist if a diver becomes seriously ill or is badly injured while under pressure. Medical care in such circumstances is difficult and the diving contractor, in conjunction with the company's medical adviser, should prepare contingency plans for such situations.

Lifting plant to carry personnel

Particular safety standards should be applied when using lifting equipment to carry personnel, including any wires used for secondary or backup lifting. These wires should be non-rotating and have an ultimate breaking strain that is at least eight times that of the normal working load. Different ratios of breaking strain to working load may be necessary in accordance with international and Australian standards.

Winches

Winches should be provided with independent primary and secondary braking systems. It is recommended for hydraulic winches that the secondary system operates automatically whenever the operating lever is returned to neutral or on loss of power. Both braking systems should be tested separately by a competent person. Winches should be governed so that they cannot overload the basket, or lifting frame, and should not be fitted with a pawl and ratchet gear where the pawl has to be disengaged before lowering.

Brakes should operate directly on the drum not through a gear box.

Diving baskets and open-bottom bells

The diving contractor should consider the following:

a. a basket or open-bottom bell, used in support of surface-supplied diving, should be able to carry at least two divers in an uncramped position. It should be designed to prevent the diver falling out and to prevent spinning and tipping. The basket should be fitted with suitable overhead protection and handholds.

b. secondary means of recovering the divers should be provided.

c. medical and equipment locks and diving bell trunkings.

d. the inadvertent release of any clamping mechanism holding together two units under internal pressure may cause fatal injury to personnel both inside and outside the units. Suitable safety devices, for example pressure indicators and interlocks, should be provided to ensure that clamps cannot be released under pressure or the system pressurised before such clamps are fully secured.

Therapeutic recompression

a. a two-person two-compartment chamber at the worksite to provide suitable therapeutic recompression treatment should be provided for all diving projects.

b. maintenance of plant and equipment.

c. diving plant is used under extreme conditions, including frequent immersion in salt water. It should therefore be maintained, examined and tested regularly. The contractor must nominate a competent person to inspect plant and equipment before use to ensure that it is not damaged and it meets the contractors nominated standards.

Planned maintenance system

The diving contractor should establish a system of planned maintenance for plant. Maintenance arrangements should take into account both passage of time and usage. The diving safety management system should specify what systems are used to ensure the maintenance of plant and equipment. Details of the maintenance arrangements should be entered in the diving project plan. The arrangements should identify the item of plant, the date of the check, any limitations as to use, any repairs or modifications carried out and the name of the competent person. The management of the planned maintenance system should be audited/monitored by the contractor.

A plant register should be maintained at the worksite with copies of all relevant certificates of examination and tests. It should contain any relevant additional information, for example details of the materials used to construct diving bells and surface compression chambers. It should also contain any details of any design limitations for use, for example maximum weather conditions, if applicable. The contractor should be satisfied that the equipment register and certificates are valid for the plant and within date.

The operator should establish that the diving contractor has maintenance systems that are functional and implemented. The following should be considered:

a. The frequency and extent of examination and testing required for all items of plant used in a diving project should be in accordance with relevant statutory provisions, national and/or international standards.

b. The dive team should be asked to carry out a pre-dive visual inspection and check the plant that they are to use, to ensure that it is in serviceable condition and working.

c. Divers' emergency gas supply cylinders and other cylinders used under water can suffer from accelerated corrosion and must be regularly examined and maintained.

d. Frequent immersion in salt water, shock loading from waves, passing over multiple sheaves and so on can cause wear and deterioration to the lift wires of diving bells and baskets if they are not properly maintained. Specialised advice on maintenance must be followed to ensure that wires remain fit for purpose.

Reg 4.19(2) A diving contractor must take all necessary steps to ensure that a diving operation for which the diving contractor is responsible is carried out in a way that complies

with the accepted DSMS for the project.

Penalty: 50 penalty units

Guidance

The diving contractor should ensure that the DSMS (which includes a process for the preparation of a DPP), is effectively implemented. In practical terms this will mean that the diving contractor must monitor and audit diving operations to monitor compliance with the DSMS and DPP; and document the outcome of such monitoring and auditing processes.

It should be noted that where codes and standards are specified within the DSMS and DPP, these must also be complied with.

Reg 4.19(3) Strict liability applies to subregulation (2)

Guidance

See section 2.3.1 for guidance on the meaning of strict liability.

2.6.2. Regulation 4.20: Safety in the diving area

Reg 4.20(1) At each place of diving, before the diving operation begins, the diving contractor must make available a copy of:

(a) the instrument by which the diving supervisor was appointed

(b) the DSMS

(c) the diving project plan that relates to the operation.

Penalty: 10 penalty units

Guidance

Copies of the following documents should be available at the dive site:

a. the letter of appointment for each diving supervisor
b. the diving contractor's current and accepted DSMS
c. the diving project plan specific to the diving project approved by the operator or accepted by NOPSEMA, as appropriate.

Reg 4.20(2) A person engaged in a diving operation must comply with:

(a) An instruction given by a diving supervisor for the diving operation about a matter in the diving project plan

(b) a direction under subregulation 4.23(3) given to the person by a diving supervisor for the diving operation

Penalty: 10 penalty units

Guidance

The supervisor is entitled to give reasonable instructions in relation to health and safety to any person taking part in the diving operation. These orders take precedence over any company hierarchy. These orders could include, for example, instructing unnecessary personnel to leave a control area and instructing personnel (nominated in the plan) to operate plant.

The supervisor retains overall control of chamber operations when a diver inside a deck chamber requires medical treatment, whether medical personnel are present or are communicating by long distance.

There will be times (for example during diving operations from a vessel) that the supervisor must liaise closely with other personnel, such as the vessel master or the officer of the watch. In such circumstances, the supervisor should recognise that the vessel master has responsibility for the overall safety of the vessel and its occupants.

Subregulation 4.23 (3) refers to 'any person taking part in the diving operation'. This is taken to include, for example, all members of the dive team, contractors, clients (or their representatives), operators (or their representatives), crane drivers, DPOs and anyone else involved in the diving operation who the diving supervisor feels may impact positively or negatively on the safety of the diving operation.

Reg 4.20(3) Strict liability applies to subregulations (1) and (2).

Guidance

See section 2.3.1 for guidance on the meaning of strict liability.

2.6.3. Regulation 4.21: Diving depth

Reg 4.21(1) The operator for a surface-oriented diving operation, involving the use of air or mixed gas as a breathing medium, must not allow the operation to be carried out at a depth of more than 50 metres.

Note: Section 10.3 of the Criminal Code provides a defence of a sudden or extraordinary emergency.

Penalty: 100 penalty units

Guidance

The operator must not approve a diving project plan where surface supplied diving operations are planned to a depth deeper than 50 metres. Surface supplied diving techniques should not be the primary contingency for emergency operations deeper than 50 metres.

It is defence to an offence under this regulation if the dive were conducted contrary to the provisions of the regulation for the purposes of rendering assistance during a sudden or extraordinary emergency when no other alternative is available.

Reg 4.21(2) The diving contractor for a surface-oriented diving operation, involving the use of air or mixed gas as a breathing medium, must not allow the operation to be carried out at a depth of more than 50 metres.

Note: Section 10.3 of the Criminal Code provides a defence of a sudden or extraordinary emergency.

Penalty: 50 penalty units

Guidance

The diving contractor cannot propose a diving project plan where surface supplied diving is planned to a depth deeper than 50 metres. Surface supplied diving techniques should not be the primary contingency for emergency operations deeper than 50 metres.

It is defence to an offence under this Regulation if the dive were conducted contrary to the provisions of the regulation for the purposes of rendering assistance during a sudden or extraordinary emergency when no other alternative is available.

Reg 4.21(3) **The operator for a diving operation that is carried out at a depth of more than 50 metres must ensure that the diving operation involves the use of:**

(a) a closed diving bell and a suitable mixed gas breathing medium

(b) a manned submersible craft.

Note: Section 10.3 of the Criminal Code provides a defence of a sudden or extraordinary emergency.

Penalty: 100 penalty units

Guidance

Except in cases of therapeutic recompression, the operator must ensure that operational dives beyond a depth of 50 metres involve the use of a closed diving bell supplied with a suitable breathing gas mixture (for bell atmosphere and divers gas supply), or alternatively a manned submersible craft is used.

Note: Suitable breathing gas must contain an appropriate inert gas that mitigates the risk of narcosis and the oxygen concentration is sufficient to prevent hypoxia, but limited so as to prevent oxygen toxicity.

It is defence to an offence under this regulation if the dive were conducted contrary to the provisions of the regulation for the purposes of rendering assistance during a sudden or extraordinary emergency when no other alternative is available.

Related topic: *see sections 'Diving plant and equipment' and 'Diver's breathing gas supply systems'*

Reg 4.21(4) **The diving contractor for a diving operation that is carried out at a depth of more than 50 metres must ensure that the diving operation involves the use of:**

(a) a closed diving bell and a suitable mixed gas breathing medium; or

(b) a manned submersible craft.

Note: Section 10.3 of the Criminal Code provides a defence of a sudden or extraordinary emergency.

Penalty: 50 penalty units

Guidance

Except in cases of therapeutic recompression treatment, the diving contractor must ensure that operational dives beyond a depth of 50 metres involve the use of a closed diving bell supplied with a suitable breathing gas mixture (for bell atmosphere and divers gas supply), or alternatively a manned submersible craft is used.

Note: Suitable breathing gas must contain an appropriate inert gas that mitigates the risk of narcosis and the oxygen concentration is sufficient to prevent hypoxia, but limited so as to prevent oxygen toxicity.

It is defence to an offence under this regulation if the dive were conducted contrary to the provisions of the regulation for the purposes of rendering assistance during a sudden or extraordinary emergency when no other alternative is available.

Related topic: *see section 'Diving plant and equipment' and 'Diver's breathing gas supply systems'*

2.7. Diving supervisors

2.7.1. Regulation 4.22: Appointment of diving supervisors

Reg 4.22(1) **The diving contractor responsible for a diving operation must appoint, in writing, one or more diving supervisors to ensure that there is a diving supervisor to supervise all diving that is carried out as part of the operation.**

NOTE: Subregulation 4.16(3) limits the scope of a diving operation that can be supervised by one diving supervisor.

Guidance

The diving contractor must appoint in writing at least one supervisor for each diving operation.

Note that subregulation 4.16 (3) provides that the diving project plan must not specify as a diving operation a task that is too complex, or too big, to be supervised safely by one supervisor.

For each diving project, the diving contractor must evaluate how much of the project can be supervised safely by one person. Sufficient numbers of supervisors must be appointed to cover the entire diving project. For example, if a diving project is taking place over such an area, time-scale, range of depths or number of personnel that it cannot be safely controlled by one supervisor, that project should be divided into separate diving operations with further supervisors being appointed as necessary.

Where a diving project incorporates around the clock diving, a supervisor must be appointed for each shift. When more than one supervisor is on duty at the same time, the diving contractor should specify in the diving project plan the areas and duration of the project that are controlled by each supervisor.

During a continuous saturation diving project, it is good industry practice to have two supervisors on shift at any one time to provide for appropriate shift and mid bell run handovers and to act as relief for one

another. The name of the supervisor in control should be recorded in the diving operation record with hand-overs for comfort breaks or other purposes also recorded.

In particular, each supervisor must have immediate overriding control of all safety aspects for the diving operation for which he or she is appointed.

On projects where more than one supervisor is required, dedicated personnel may be needed to provide safe management control. The diving contractor may also need to provide for this in a management structure in the diving project plan.

Related topic: *see sub-element 3.7 'Working hours'*
see Reg 4.16 'Contents of a diving project plan'

Reg 4.22(2) A diving contractor must not appoint, as a diving supervisor, a person who is not:

(a) qualified as a supervisor under ADAS

(b) competent to supervise the operation.

Guidance

The Australian Diver Accreditation Scheme (ADAS) is the Australian national occupational diver certification scheme.

The regulations require that diving supervisors and divers must be accredited under the ADAS scheme in order to undertake offshore petroleum and greenhouse gas storage related diving operations. Under the ADAS scheme there are a number of qualifications that cater for the variety of disciplines within a diving team, (for example, air supervisor, air diver, saturation supervisor etc.). These qualifications are valid for a prescribed period, following which renewal must be applied for. Diving contractors must therefore ensure the ADAS qualifications held by diving supervisors and divers are appropriate for the intended activity and valid.

Supervisors should be suitably qualified for the diving techniques to be used during diving operations on which they will be employed. For example, a supervisor qualified to supervise an air diving operation only, is not qualified to supervise a bell operation whereas a bell diving supervisor is qualified to take charge of both types of operation. Any person appointed as a supervisor must therefore possess the correct qualification applicable to the planned diving operation.

Supervisors do not require a certificate of medical fitness to dive. However as a minimum requirement they should be certified fit for general offshore duties.

As the supervisor is the person responsible for divers under his or her control (including any divers undergoing hyperbaric treatment), the supervisor requires the knowledge and experience to make competent assessments in situations that arise.

Therefore in addition to possessing an appropriate qualification, the diving contractor must consider the competence of a person before appointing them as a supervisor. When considering competence, the diving contractor should consider whether the person is:

- Knowledgeable
- Practical
- Reliable
- Capable of conducting the diving operation in a safe manner
- Capable of communicating with and managing members of the diving team
- Capable of managing an emergency.

The supervisor must have adequate practical and theoretical knowledge and experience of the diving techniques to be used.

The diving contractor will be in a good position to decide on the person's competence if the candidate has worked for the company for some time. If the diving contractor does not know the person, it will be necessary to make appropriate inquiries concerning knowledge and experience.

ADAS has in place arrangements to recognise divers and supervisors who can demonstrate that they possess the requisite competencies to meet the agreed ADAS standards.

Reg 4.22(3) Strict liability applies to subregulations (1) and (2).

Guidance

See section 2.3.1 for guidance on the meaning of strict liability.

2.7.2. Regulation 4.23: Duties of diving supervisors

Reg 4.23(1) The duties of a diving supervisor for a diving operation are:

(a) to ensure that the diving operation is carried out:

(i) as far as reasonably practicable without risk to the health or safety of anybody taking part in it or of anyone else who may be affected by it

Guidance

The supervisor has a duty to direct the diving operation safely. It should be noted that this requirement places a responsibility on the diving supervisor to ensure that diving operations are carried out – as far as reasonably practicable - without risk to participants or those that may be affected by the operation. To carry out a duty as far as reasonably practicable means that that the degree of risk in a particular activity or environment can be balanced against the time, trouble, cost and physical difficulty of taking measures to avoid the risk. If these are so disproportionate to the risk that it would be unreasonable for the people concerned to have to incur then to prevent it, they may not be obliged to do so.

The greater the risk, the more likely it is that it is reasonable to go to very substantial expense, trouble and invention to reduce it. However, if the consequences and the extent of a risk are small, insistence on great expense is not likely to be considered reasonable. It is important to remember that the judgement is an objective one and the size or financial position of the employer is immaterial.

If a supervisor does not agree with any aspect of the diving project allocated as his or her operation to supervise, the supervisor should raise the matter with the diving contractor. A supervisor should not participate in a diving operation that he or she considers to be unsafe.

Reg 4.23(1)(a) The duties of a diving supervisor for a diving operation are to ensure that the diving operation is carried out:

(ii) In accordance with the law

Guidance

It may seem self-evident that all persons have a duty to comply with the law in all circumstances. This regulation, however, reinforces this by re-stating it in these Regulations as a mandatory duty of the supervisor. The supervisor has a specific duty while undertaking the supervision of a diving operation to do so in compliance with all relevant law, not just these Regulations.

Reg 4.23(1)(a) The duties of a diving supervisor for a diving operation are to ensure that the diving operation is carried out:

(iii) in accordance with the accepted DSMS for the operations
(iv) in accordance with the relevant diving project plan.

Guidance

Supervisors must ensure that diving operations are carried out safely and in line with the diving contractor's DSMS (policies, standards, practices and procedures) as accepted by NOPSEMA, and the site-specific measures agreed between the diving contractor and the operator. To this end, they must conduct the diving operation in accordance with the requirements of the DSMS, the diving project plan and the site-specific risk assessment. They should ensure that:

a. as far as is reasonably practicable, the diving operation that they are being asked to supervise complies with the requirements of this guidance
b. the proposed dive site and the water and weather conditions are suitable
c. the risk assessment is still current for the circumstances prevailing on the day and during the dive
d. they understand their own areas and levels of responsibility and who is responsible for any other relevantareas
e. the personnel that they are to supervise are appropriately qualified and are competent to carry out the work required of them. They should also check, as far as is reasonable, that these personnel are fit, and in possession of all necessary certificates, that is medical fitness to dive, diver's certificate and first aid
f. the diving project plan and arrangements for dealing with foreseeable emergencies are clearly understood by all those engaged in the diving operation. This would normally be assured bya pre-dive briefing session with all those involved and, if required, suitable training
g. the plant that they propose to use for any particular operation is adequate, safe, properly certified and maintained. They should ensure that the plant is adequately inspected by themselves or another competent person before its use. Such inspections should be documented, for example on a prepared checklist, and recorded in the diving operation record
h. the possible hazards from complex or potentially hazardous plant have been evaluated and are fully understood by all relevant parties and that, if required, training is given. This should be carried out as part of the risk assessment during the planning of the operation and should be documented. If

the situation changes, the risk assessment should be re-evaluated. Supervisors should ensure that documentation on the risk assessment of the plant is available and follow any guidance contained in the documentation, for example a manufacturer's instructions

i. all relevant people are aware that a diving operation is to start or continue. They should also obtain any necessary permission before starting or continuing the operation

j. they have adequate means of communication with any personnel under their supervision. So long as they have such communication they do not need to be able to operate physically every control under their responsibility. For example, a supervisor should be able to supervise adequately the raising and lowering of a diving bell if there is a direct audio link with the winch operator, even though the winch may be located where the supervisor cannot see it or have ready access to it

k. proper records of the diving operation are maintained. This must include the particulars specified in the diving operation log (dive log or diving operations record - Regulation 32)

l. they are able to see divers in the bell or the compression chamber during saturation operations

m. they maintain the diving operation record throughout the diving operation for which they are responsible.

Reg 4.23(1) The duties of a diving supervisor for a diving operation are:

(b) to countersign entries about operation in divers' log books.

Guidance

The diving supervisor must check that the entries recorded in the diver's log are an accurate record of the dive and then countersign the page to certify to that effect.

Contractors should have mechanisms in place to ensure that divers' logbooks can be signed off if supervisors leave the site unexpectedly. This is often the case when for logistical reasons, crew may be changed out at short notice.

Reg 4.23(1) The duties of a diving supervisor for a diving operation are:

(c) if there is an operator for the diving project—to report to the operator, during the operation, any of the following:

(i) the death of, or serious personal injury to, a person

(ii) the incapacitation of a person that prevents the person from performing work for a period of 3 or more days

(iii) an event that could reasonably have led to a consequence of the type mentioned in subparagraph (i) or (ii)

(iv) a decompression illness

(v) a pulmonary barotrauma

(vi) a case of omitted decompression

(vii) an occurrence for which the standby diver is deployed for an emergency, except for the purposes of training, exercises or drills

(viii) a failure of life support equipment or man-riding equipment.

Guidance

Regulation 2.42 of the Regulations provides that the operator has the primary responsibility to notify and report accidents and dangerous occurrences that occur on the facility or within its vicinity to NOPSEMA.

It is important to note that the diving supervisor also has a duty to report to the operator details of accidents and incidents as listed above. While the regulation does not specify a deadline for which the information must be supplied by the supervisor to the operator, it should be provided in a timescale that allows the operator to meet their obligations under regulation 2.42.

Related topic: *see Reg 4.27 'Diving operations record'*

Reg 4.23(2) **A diving supervisor who fails to carry out a duty imposed on him or her by subregulation (1) is guilty of an offence.**

Penalty: 20 penalty units

Guidance

Subregulation 4.23(2) places a legal obligation on the diving supervisor to conduct safe diving operations in accordance with subregulation 4.23(1). In doing so the regulation emphasises the importance of compliance with the DSMS and the DPP as instruments to achieving safe operations.

Reg 4.23(3) **A diving supervisor, when supervising a diving operation, may give such reasonable directions to any person taking part in the operation as are necessary to enable the diving supervisor to comply with subparagraph (1)(a)(i).**

Guidance

The supervisor is empowered by this subregulation to give reasonable orders in relation to health and safety to any person taking part in the diving operation. In addition to all members of the diving team, 'any person' is taken to include, for example, all members of the dive team, contractors, clients (or their representatives), operators (or their representatives), crane drivers, DPOs and anyone else involved in the diving operation who the diving supervisor feels may impact positively or negatively on the safety of the diving operation.

While these persons may be under the control of someone other than the diving supervisor, i.e. a vessel master, in the first instance they must act on the reasonable directions of the diving supervisor.

Note: It is recognised that a vessel master has responsibility for the overall safety of the vessel and all those on-board.

These orders take precedence over any company hierarchy. These orders could include, for example, instructing unnecessary personnel to leave a control area and instructing personnel (nominated in the plan) to operate plant.

The supervisor remains in overall control when a diver inside a deck chamber requires medical treatment, whether medical personnel are present or are communicating by long distance.

The authority provided by the regulation is restricted to persons taking part in the diving operation. While there will be many occasions where persons outside of the operation will need to do or not so things that impinge on the health and safety of divers, the supervisor is not empowered to direct such persons. Compliance in these incidents must be through directions by the person empowered to be in overall charge of the project or through a process of negotiation.

Reg 4.23(4) **A diving supervisor must not dive while he/she is on duty as diving supervisor.**

Note: Section 10.3 of the criminal guideline provides a defence of sudden or extraordinary emergency.

Penalty: 20 penalty units

Guidance

As noted above, the diving supervisor has a legal duty under the Regulations to ensure the health and safety of those persons under his or her control. This regulation requires the supervisor, while on duty as the supervisor of a diving operation, not to dive. This does not prevent the supervisor from diving if he or she has been relieved from duty as a supervisor and replaced by another appropriately appointed and qualified supervisor.

It is a defence to an offence under this regulation if the dive were conducted contrary to the provisions of the Regulation for the purposes of rendering assistance during a sudden or extraordinary emergency when no other alternative was possible.

Reg 4.23(5) **A diving supervisor for a diving operation must tell each person who takes part in the operation any instruction, in the diving project plan for the operation that applies to the person.**

Penalty: 20 penalty units

Guidance

This subregulation places a duty on the supervisor to ensure that all persons involved in the diving operation are thoroughly and adequately briefed and provided with all relevant information that is necessary to enable those persons to safely carry out their part in the operation.

Reg 4.23(6) **In this regulation:**
man-riding equipment **includes any of the following:**

(a) an air stage;

(b) a wet bell;

(c) a closed bell;

(d) a guide wire system.

Note 1: If there is no operator for a diving project, State/Northern Territory laws, as applied by section 80 of the OPGGS Act, may require the reporting of accidents and incidents.

Note 2: regulation 4.27 requires a diving supervisor to maintain a diving operations record.

Guidance

This subregulation provides examples of man riding equipment typically used in diving operations and is a term used in subregulation 4.23(1)(c) and within Section 3 of the Guidelines.

Man riding equipment will also include launch and recovery systems, lift wires and secondary lift wires such as guide wires. During a hyperbaric evacuation and rescue the hyperbaric rescue chamber or self-propelled hyperbaric life boat may be required to be launched and recovered which will require man riding equipment.

2.8. Start-Up Notice

2.8.1. Regulation 4.24: Start-Up Notice

Reg 4.24(1) **In this regulation:**

***start-up notice*, for a diving project, means a written notice, signed by or for the person giving it, dated and containing the following information:**

- **(a) the name, address and telephone number of the diving contractor for the project**
- **(b) the name, address and telephone number of a person who can be contacted by NOPSEMA at any time during the project**
- **(c) the date when diving is expected to begin**
- **(d) the expected duration of the project**
- **(e) the location of the project**
- **(f) the depth to which divers will dive**
- **(g) the purpose of the diving project**
- **(h) the estimated number of people to be engaged in the project**
- **(i) the breathing mixture to be used**
- **(j) the title, document number and revision number of the diving project plan for the project.**

Guidance

The start-up notice is intended to ensure that NOPSEMA is notified about each and every diving project that is being undertaken within NOPSEMA's jurisdiction. This allows NOPSEMA to plan for and undertake appropriate checks and inspection of diving operations.

In most instances the information supplied with the start-up notice will be all the information that NOPSEMA will have regarding the project. The information supplied in the start-up notice therefore needs to be sufficient to allow NOPSEMA to make a decision whether or not to undertake an inspection of the diving operation and whether or not to request a copy of the diving project plan.

Related topic: *see Reg 4.13 'Diving project plan to NOPSEMA if requested'*

Reg 4.24(2) **The operator for a diving project must not allow diving on the project to begin if the operator has not given a start-up notice to NOPSEMA:**

(a) at least 14 days before the day when diving is to begin

(b) on another day as agreed between NOPSEMA and the operator.

Penalty: 100 penalty units

Guidance

The operator of the diving project must not allow diving operations to commence until the operator has submitted a start-up notice to NOPSEMA providing at least 14 days advance notice of diving operations commencing. The minimum 14 days' notice is required so that NOPSEMA has sufficient time to prepare for an inspection of the operations, should this be considered appropriate.

For complex diving projects, the operator should consider notifying NOPSEMA well in advance of the project to facilitate liaison or consultation with NOPSEMA regarding specific aspects of the project.

Where diving projects are required in urgent response to an unplanned event and need to be undertaken immediately or as soon as possible, it may not be possible to provide NOPSEMA with 14 days advance notice. In these circumstances, NOPSEMA should be contacted as soon as possible after the need to conduct diving operations arises, so that an alternative start date can be agreed. When this occurs the operator will be asked to provide details to justify agreement to a period of less than 14 days. NOPSEMA will also need to be satisfied that the urgency and associated short lead time does not compromise the safety of all those involved in the project. This would include advice that the DPP has been developed and approved by the operator of the diving project.

Related topic: *see Definitions: 'Operator of a diving project'*

Reg 4.24(3) **If there is no operator for a diving project, the diving contractor must not allow diving on the project to begin if the diving contractor has not given a start-up notice to NOPSEMA**

(a) at least 14 days before the day when diving is to begin

(b) on another day as agreed between NOPSEMA and the diving contractor.

Penalty: 50 penalty units

Guidance

There are a small number of occasions envisaged where a diving project will be carried out under these Regulations without the involvement of an operator. In these circumstances, under this subregulation the diving contractor has the responsibility to submit a diving start-up notice to NOPSEMA.

If there is no operator, the diving contractor must not allow diving operations to commence until the diving contractor has submitted a diving start-up notice to NOPSEMA providing at least 14 days advance notice of diving operations commencing.

The diving start-up notice should be submitted to NOPSEMA at least 14 days in advance of diving operations commencing. The minimum 14 days' notice is required so that NOPSEMA has sufficient time to prepare for an inspection of the operations, should this be considered appropriate.

For complex projects, the diving contractor might well notify NOPSEMA well in advance of the project to facilitate liaison or consultation with NOPSEMA regarding specific aspects of the project.

Where diving projects are required in urgent response to an unplanned event and need to be undertaken immediately or as soon as possible, it may not be possible to provide NOPSEMA with 14 days advance notice. In these circumstances, NOPSEMA should be contacted as soon as possible after the need to conduct diving operations arises, so that an alternative start date can be agreed. When this occurs the diving contractor will be asked to provide details to justify agreement to a period of less than 14 days. NOPSEMA will also need to be satisfied that the urgency and associated short lead time does not compromise the safety of all those involved in the project.

2.9. Diving operations

2.9.1. Regulation 4.25: Divers in diving operations

Reg 4.25(1) **A diving contractor for a diving operation must not allow a person to dive in the diving operation if the person is not competent to carry out safely any activity that is reasonably likely to be necessary while the person is taking part in the operation.**

Penalty: 50 penalty units

Guidance

When considering a diver's competence, the diving contractor should consider whether the person has the appropriate training, qualifications and experience to safely carry out the task.

It should be noted that a diver may be a qualified diver, and possess appropriate general diving competence, but not have the specific knowledge, skills or experience to safety carry out the particular task to be conducted during the operation.

When assessing a diver's competence, the diving contractor should consider the diver's knowledge, skills and experience with, for example:

a. all activities the diver may reasonably expect to carry out while taking part in the diving project
b. dealing with all reasonably foreseeable emergencies
c. the objectives of the diving project
d. the required diving technique (for example, surface, saturation or manned submersible craft/hard suit diving)
e. the level of competence required to undertake the assigned duty
f. any restriction and/or limitation stated on a particular diving qualification certificate, which must be strictly complied with such as diving technique, type of equipment, breathing gases, and maximum depth.

Reg 4.25(2) **A diving supervisor for a diving operation must not allow a person to dive in the diving operation if the person is not competent to carry out safely any activity that is reasonably likely to be necessary while the person is taking part in the operation.**

Penalty: 20 penalty units

Guidance

When considering a diver's competence, the diving supervisor should consider whether the person has the appropriate training, qualifications and experience to safely carry out the task.

It should be noted that a diver may be a qualified diver, and possess appropriate general diving competence, but not have the specific knowledge, skills or experience to safety carry out the particular task to be conducted during the operation.

When assessing a diver's competence, the diving supervisor should consider the diver's knowledge, skills and experience with, for example:

a. all activities the diver may reasonably expect to carry out while taking part in the diving project
b. dealing with all reasonably foreseeable emergencies
c. the objectives of the diving project
d. the required diving technique (for example, surface, saturation or manned submersible craft/hard suit diving)
e. the level of competence required to undertake the assigned duty
f. any restriction and/or limitation stated on a particular diving qualification certificate, which must be strictly complied with such as diving technique, type of equipment, breathing gases, and maximum depth.

Reg 4.25(3) **A diving contractor for a diving operation must not allow a person to dive in the diving operation if the person does not have a current diving qualification under ADAS to carry out any activity that is reasonably likely to be necessary while the person is taking part in the operation.**

Penalty: 50 penalty units

Guidance

This regulation requires the diving contractor for a diving operation to prevent a person from diving in the operation unless the diver has an appropriate level of, and current, ADAS diving qualification.

Possessing an ADAS qualification does not necessarily mean that a person holding that qualification is competent to carry out any or all types of diving work. The diving contractor should also take account of a person's relevant training and experience when determining their competency to dive.

Reg 4.25(4) **A diving supervisor for a diving operation must not allow a person to dive in the diving operation if the person does not have a current diving qualification under ADAS to carry out any activity that is reasonably likely to be necessary while the person is taking part in the operation.**

Penalty: 20 penalty units

Guidance

This regulation requires the diving supervisor for a diving operation to prevent a person from diving in the operation unless the diver has an appropriate level of, and current, ADAS diving qualification.

Possessing an ADAS qualification does not necessarily mean that a person holding that qualification is competent to carry out any or all types of diving work. The diving supervisor should also take account of a person's relevant training and experience when determining their competency to dive.

Reg 4.25(5) **A diving contractor for a diving operation must not allow a person to dive in the diving operation if the person does not have a valid medical certificate.**

Note: For the meaning of valid medical certificate see regulation 4.26.

Penalty: 50 penalty units

Guidance

This regulation requires that the diving contractor prohibit a person from diving in the operation unless the diver has a valid medical certificate (as defined by regulation 4.26).

Related topic: *see Reg 4.26 'Medical certificates'*

Reg 4.25(6) **A diving supervisor for a diving operation must not allow a person to dive in the diving operation if the person does not have a valid medical certificate.**

Note: For the meaning of valid medical certificate see regulation 4.26.

Penalty: 20 penalty units

Guidance

This regulation requires that the diving supervisor for a diving operation prohibit a person from diving in the operation unless the diver has a valid medical certificate (as defined by regulation 4.26).

Related topic: *see Reg 4.26 'Medical certificates'*

Reg 4.25(7) **Subregulations (3), (4), (5) and (6) do not apply if the person:**

(a) is diving in a manned submersible craft

(b) is diving to provide emergency medical care to an injured person in a chamber.

Guidance

Persons undertaking underwater operations inside a manned submersible craft or providing emergency medical care within a chamber do not require an ADAS qualification or a diving medical certificate.

However, it is strongly recommended that any person who undertakes either of these activities is both appropriately competent and medically fit for the task and should therefore conform to appropriate industry standards as applicable.

Reg 4.25(8)	**Strict liability applies to the circumstance in subregulations (3), and (4) that the person does not have a current diving qualification under ADAS.**
Reg 4.25(9)	**Strict liability applies to the circumstance in subregulations (5) and (6) that the person does not have a valid medical certificate.**

Guidance

See section 2.3.1 for guidance on the meaning of strict liability.

2.9.2. Regulation 4.26: Medical certificates

Reg 4.26(1)	**A diver's medical certificate is valid if it satisfies subregulation (2) or (3).**
Reg 4.26(2)	**A diver's medical certificate satisfies this subregulation if:**
	(a) it certifies that, at the time it was given, the diver was fit to dive in accordance with the fitness requirements in AS/NZS 2299

Guidance

A diver's medical examination must be based on the 'Guidance for Medical Practitioners' (Appendix M of AS/NZS 2299.1) and the medical certificate should detail the elements within the 'Diving Medical Examination' form (Appendix N of AS/NZS 2299.1).

The medical practitioner who conducts the medical examination and completes the certificate must meet the requirements outlined under regulation 4.26(2)(c).

Reg 4.26(2)	**A diver's medical certificate satisfies this subregulation if:**
	(b) it is not more than 1 year old

Guidance

The certificate of medical fitness to dive is a statement of the diver's fitness to perform work underwater, and is valid for as long as the doctor certifies, up to a maximum of 12 months.

Persons who dive in a diving project and who consider themselves unfit for any reason, for example when fatigued, injured, or has received recent medical treatment, etc., must inform their supervisor. Even a minor illness, such as the common cold or a dental problem, can have serious effects on a diver under pressure, and should be reported to the supervisor before the start of a dive. Supervisors should seek guidance from the diving contractor or the company's medical adviser if there is doubt about that person's fitness to dive.

Before any dive not involving saturation, the supervisor should ask the divers to confirm that they are fit to dive and record this confirmation in the diving operation record.

Before saturation exposure, the supervisor should ensure that a diver has had a pre-saturation medical check within the previous 24 hours. This should be carried out by an on-board medic, nurse, doctor or diver medic. This will confirm, as far as reasonably practicable, the diver's fitness to enter saturation. The content of the medical check and the format of the written record may be decided by the diving contractor, and should be specified in the diving contractor's DSMS.

Reg 4.26(2) A diver's medical certificate satisfies this subregulation if:

(c) The medical practitioner who gave it:

(i) is accredited by the South Pacific Underwater Medicine Society, the Health and Safety Executive of the United Kingdom or the Underwater Hyperbaric Medicine Society.

Guidance

Medical practitioners accredited by any of the following organisations to perform Occupational Diving Medicals on divers are deemed to comply with these Regulations:

a. the South Pacific Underwater Medicine Society (SPUMS)

b. the Health and Safety Executive of the United Kingdom

c. the Underwater Hyperbaric Medicine Society.

Reg 4.26(2) A diver's medical certificate satisfies this subregulation if:

(c) The medical practitioner who gave it:

(ii) has completed an appropriate course of training conducted by the Royal Australian Navy or the Royal Adelaide Hospital.

Guidance

Medical practitioners who have successfully completed appropriate courses conducted by any of the organisations listed above are considered to comply with these regulations.

Reg 4.26(2) A diver's medical certificate satisfies this subregulation if:

(c) The medical practitioner who gave it:

(iii) has been approved under the Australian Diver Accreditation Scheme

Guidance

Medical practitioners who have been formally approved by ADAS to undertake medical examination of divers are considered to comply with these Regulations.

Reg 4.26(2) A diver's medical certificate satisfies this subregulation if:

(d) before giving it, the medical practitioner examined the diver in accordance with the Schedule of Minimum Examination Requirements in AS/NZS 2299.

Guidance

A diver's medical examination must be based on the 'Guidance for Medical Practitioners' (Appendix M of AS/NZS 2299.1) and medical certificate should detail the elements within the 'Diving Medical Examination' form (Appendix N of AS/NZS 2299.1).

Reg 4.26(2) **A diver's medical certificate satisfies this subregulation if:**

(e) immediately after the examination, the medical practitioner entered the certificate in the diver's log book.

Guidance

The doctor, on completing the examination, must immediately enter the details of the examination into the appropriate section of diver's log book. This constitutes the diver's permanent record and must make clear the following details:

- The name of the diver
- The status of the diver's medical fitness to dive, i.e. fit, not fit, and/or any conditions or restrictions that may apply
- The date on which the examination took place
- The date on which the certificate expires
- The standard to which the examination was conducted against, for example AS/NZS 2299

The doctor may also attach or staple a medical certificate to the diver's log book.

Reg 4.26(3) **A diver's medical certificate satisfies this subregulation if it is valid for the United Kingdom under any law of the United Kingdom relating to the medical fitness of persons employed as divers.**

NOTE: At present, the relevant law for the United Kingdom is regulation 15 of the Diving at Work Regulations 1997.

Guidance

Occupational diving medical certificates issued by 'Approved medical examiner of divers' (AMED) registered with the UK Health and Safety Executive, in accordance with the United Kingdom Diving at Work Regulations 1997 – SI 1997 No. 2776, for the purposes of completing occupational diving medical examinations are deemed acceptable.

2.10. Records

2.10.1. Regulation 4.27: Diving operations record

Reg 4.27(1) **A diving supervisor for a diving operation must ensure that a diving operations record for the operation is maintained in the form required by subregulations (2) and (3)**

Penalty: 50 penalty units

Guidance

Under the Regulations every diving supervisor must ensure that a record of every diving operation supervised by that person is kept in the form detailed in the subregulations (2) and (3). Once this document contains information relevant to a diving operation it becomes a legal document and can be used as evidence of what did or did not occur during a particular operation. To that end, diving supervisors must ensure that the record is a true and comprehensive account of the operation.

Reg 4.27(2) **A diving operations record:**

(a) must be kept in a hard-covered form bound in such a way that its pages cannot easily be removed; or

(b) if it is in a form that has multiple copies of each page, must be bound so that at least 1 copy of each page cannot easily be removed.

Reg 4.27(3) **The pages of a diving operations record must be serially numbered.**

Guidance

This regulation is intended to ensure that a formal detailed permanent record is kept of every diving operation conducted by the diving contractor. A diving operations record must be kept in a hard bound record book (i.e. not loose leaf pages) with the pages numbered serially. If the form of the record is multiple self-carbon pages, the copies of which are perforated for easy removal, the original page must be not be perforated and it must be designed to be retained in the record book.

Reg 4.27(4) **The diving supervisor for a diving operation must ensure that an entry is made in the diving operations record for each day when diving for the operation takes place, with the following information about the diving operation on that day:**

(a) the date to which the entry relates

(b) the diving contractor's name and address

(c) the name of the diving supervisor, or the names of the diving supervisors, who supervised the operation

(d) the location of the diving operation (including, if the diving was done from a vessel or installation, its name)

(e) the name of each person who took part in the operation (whether as a diver or as a member of a dive team)

(f) the name of each person who took part as a diver or stand-by diver in the operation

(g) the purpose of the diving operation

(h) for each diver – the breathing apparatus and breathing mixture used

(i) for each diver – the times at which the diver left the surface, reached the bottom, left the bottom and arrived at the surface again, and bottom time

(j) for each diver – the maximum depth reached

(k) the decompression schedule followed including, for each diver, details of the depths and duration at each depth during decompression

(l) details of any emergency or incident of special note that happened during the operation

(m) details of any decompression illness and any treatment given

(n) details of any significant defect or significant failure of diving plant or equipment used in the operation

(o) details of any environmental factors relevant to the operation

(p) anything else that is likely to affect the health or safety of anybody who took part in the operation

Penalty: 10 penalty units

Guidance

The diving supervisor must ensure that a daily record is kept of each diving operation that takes place, containing all the information required by this regulation.

Reg 4.27(5) A diving supervisor responsible for a diving operation must sign:

(a) either:

(i) if the record is in a form that has multiple copies of each page – the original of each page of each entry

(ii) in any other case – each page of each entry

in the diving operations record for the operation and must print his or her name below the signature.

Penalty: 10 penalty units

Guidance

The diving supervisor must sign each page of the diving operation record to verify that the information entered into the record is true and correct. If the pages are in the form of multiple self-carbon pages, only the original top page must be signed.

Reg 4.27(5) A diving supervisor responsible for a diving operation must sign:

(b) if there are 2 or more diving supervisors for the operation – those parts of the entry that relate to diving work that he or she supervised;

in the diving operations record for the operation and must print his or her name below the signature.

Penalty: 10 penalty units

Guidance

If the diving operations involve more than one supervisor (for example, if the diving operation spans more than one shift, or the diving supervisor is relieved for any reason during the course of the operation by another diving supervisor), then each supervisor must certify the details pertaining to the part of the operation that he or she supervised.

The relevant part of the record should be plainly ruled-off and the supervisor should countersign those details for which he or she had responsibility (e.g. clearly delineating whenever he or she relieved or was relieved as a diving supervisor) and print legibly his or her name below the signature, to ensure that it is clear who is responsible at any particular time during the course of the diving operation.

Reg 4.27(6) A diving contractor must keep a diving operations record for at least seven years after the last entry in it.

Penalty: 5 penalty units

Guidance

Every record of a diving operation conducted by a diving contractor must be kept in safe conditions for seven years after the last date in the record. This allows for subsequent reference to the records for possible medical and/or legal reasons.

For saturation diving projects, a diving operations record includes the records maintained by the Life Support Supervisor.

Related topic: *see Reg 4.2 'When a diving operation begins and ends'*

2.10.2. Regulation 4.28: Divers' log books

Reg 4.28(1) A diver must:

(a) have a log book in the form required by subregulation (2)

Guidance

Every diver who dives in diving operations subject to these Regulations must possess a diver's log book as described below. Under the Regulations, every diver has a legal obligation to ensure that a detailed permanent record of every diving operation undertaken by the diver is kept in the form detailed in the regulations. As soon as information relevant to a diving operation is entered into this document it becomes a legal record and can be used as evidence of what did or did not happen during a particular operation.

Diving supervisors must therefore ensure that the record is a true and correct and comprehensive account of the operation in case there is any need to subsequently refer to this information for medical and/or legal reasons.

Reg 4.28(1) A diver must:

(a) for each time he or she dives:

(i) make an entry in the log book, in ink, as required by subregulation (3)

(ii) sign the entry

(iii) have the diving supervisor for the operation countersign the entry

(b) keep the log book for at least seven years after the last entry in it.

Penalty: 5 penalty units

Guidance

A diver must keep a record (written in ink) in his or her log book containing the details required in regulation 4.28(3) (below) for every dive undertaken by the diver. The diver must verify the accuracy of the details by signing the entry and have the accuracy of the entry certified by the diving supervisor who supervised the relevant dive.

It is not always practical for divers in saturation to have the diving supervisor sign the diver's log book immediately after each dive. However, every effort should be made to obtain the diving supervisor's signature in relevant log book entries before the diving supervisor leaves the job site.

It follows that in order for divers to discharge their responsibilities under this regulation, they must have the log books with them on site so that the relevant dive information can be recorded in a timely manner and enable the diving supervisor involved in the operation to verify the entry.

Each logbook must be kept by the diver for at least seven years after the last entry in case there is any need to subsequently refer to this information for medical and/or legal reasons.

Reg 4.28(2) The log book must:

(a) have hard covers

(b) be bound so that pages cannot easily be removed

(c) have its pages serially numbered

(d) show the diver's name

(e) have a clear photograph of the head and shoulders of the diver

(f) have a specimen of the diver's signature

Guidance

This regulation is intended to ensure that a formal detailed permanent record is kept of every diving operation undertake by a diver. A diving logbook must be kept in a hard bound record book (i.e. not loose leaf pages) with the pages numbered serially. It must clearly identify the person to whom the diving details in the record relate and must have a clear photograph showing a good likeness of the diver whose name is printed in the book and whose signature is displayed in the personal information.

A diver's log book is a legal record of the details of every dive undertaken by the diver. The diver must have it available at all times during a diving operation for production to an inspector under appointed under the OPGGS Act whenever required. The inspector must be able to ascertain from the details in the record that the diver is the person to whom the details in the logbook refer.

Reg 4.28(3) An entry in the log book must contain the following information:

(a) the date to which the entry relates

(b) the location of the diving operation (and, if the dive was from a ship or installation, the name of the ship or installation)

(c) the maximum depth reached

(d) the times at which the diver left the surface, reached the bottom, left the bottom and arrived at the surface again, and bottom time

(e) the breathing apparatus and breathing mixture used

(f) the decompression scheduled followed

(g) the work done and plant and tools used

(h) any decompression illness, barotrauma, discomfort or injury and any details of treatment given

(i) details of any emergency or incident

(j) anything else relevant to the diver's health or safety.

Guidance

The diver must keep a record accurately containing all of the information required by this regulation for each dive undertaken.

While regulation 4.28 details the diver's legal obligations to record relevant information pertaining to each dive, much of this information is also likely to be used by diving contractors and operators as one of the methods available to them to assess a diver's competence. This is a further reason why detailed and accurate records should be kept.

Reg 4.28 (4) Strict liability applies to subregulation (1)

Guidance

See section 2.3.1 for guidance on the meaning of strict liability.

3. Diving Safety Management System

Subregulation 4.4(1) requires that a diving safety management system (DSMS) must meet minimum standards set out in guidelines made by NOPSEMA. The minimum standards have been broken down into a number of key elements, each having a number of sub-elements. Each key element has an 'Aim' providing a general overview of the element.

Evidence of implementation of key elements and sub-elements is demonstrated by responding to prompt questions under the sub-elements. Several of the sub-elements detail compliance standards which provide a test of implementation. Additionally there is guidance on how the standard may be complied with.

The DSMS submission process requires NOPSEMA to accept the DSMS before the diving contractor is able to undertake a diving project. It is recommended that a DSMS concordance table is used to assist in preparing a new or revised DSMS for submission to NOPSEMA. The concordance table provides further information on the DSMS content requirements and should be provided to NOPSEMA when submitting a DSMS for assessment. A link to the DSMS concordance table can be found under 'Safety' and 'Diving Operations' at nopsema.gov.au.

A typical structure for a Safety Management System is shown in Figure 1.

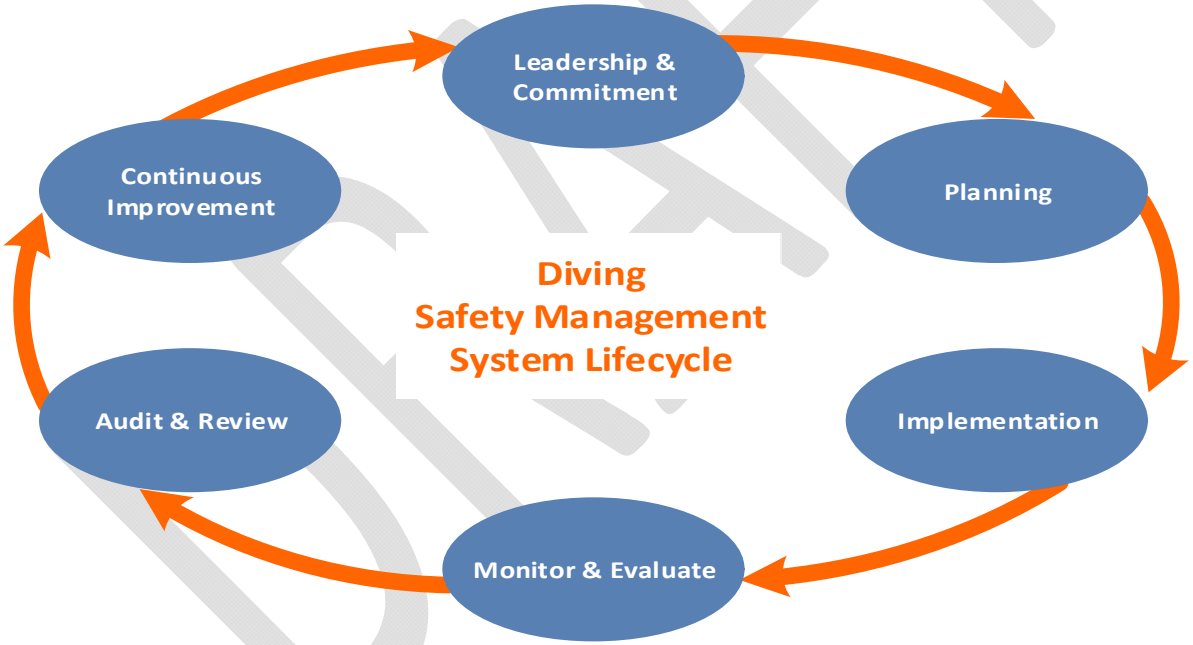

Figure 1: DSMS Lifecycle

The DSMS outline is covered in the following sections:

Section 3 Reference	Key element
3.1	Key Element 1.0: Leadership and commitment
3.1.2	Sub-element 1.1: Policy and leadership
3.1.3	Sub-element 1.2: Organisation and responsibility
3.1.4	Sub-element 1.3: Workforce involvement and communication
3.1.5	Sub-element 1.4: Resources
3.2	Key Element 2.0: Planning
3.2.2	Sub-element 2.1: Hazard identification and risk management
3.2.3	Sub-element 2.2: Objectives, plans and performance standards
3.2.4	Sub-element 2.3: Sources of information (legislative and other standards)
3.2.5	Sub-element 2.4: Management system documentation
3.3	Key Element 3.0: Implementation
3.3.2	Sub-element 3.1: Design, construction and commissioning
3.3.3	Sub-element 3.2: Management of change
3.3.4	Sub-element 3.3: Purchasing and control of materials and services
3.3.5	Sub-element 3.4: Safe operational procedures
3.3.6	Sub-element 3.5: Materials handling and storage
3.3.7	Sub-element 3.6: Maintenance and repair
3.3.8	Sub-element 3.7: Workforce selection, competency and training
3.3.9	Sub-element 3.8: Workplace environment
3.3.10	Sub-element 3.9: First aid and emergency response
3.4	Key Element 4.0: Monitoring and evaluation
3.4.2	Sub-element 4.1: Inspection, testing and monitoring
3.4.3	Sub-element 4.2: Health monitoring systems
3.4.4	Sub-element 4.3: Incident/hazard investigating and reporting
3.4.5	Sub-element 4.4: Health and safety information and reports
3.5	Key Element 5.0: Auditing and review
3.5.2	Sub-element 5.1: DSMS audit
3.5.3	Sub-element 5.2: Review and improvement

3.1. Key Element 1.0: Leadership and commitment

3.1.1. Aim

The diving contractor must demonstrate, through the DSMS, a commitment to achieving a high standard of health and safety in the organisation through the development of effective health and safety policies supported by appropriate organisational structures, positive behaviour of individual managers and the promotion of a cooperative effort at each level in the organisation.

3.1.2. Sub-element 1.1: Policy and leadership

Standard

The diving contractor's health and safety policy must be supported by a high level commitment to effective risk and safety management consistent with and at least equal to other business aims.

The DSMS shall contain a Health and Safety Policy Statement, authorised by the accountable chief executive.

Guidance

Policy

The DSMS should demonstrate:

a. there is a documented health and safety policy authorised by the accountable chief executive that clearly states the strategic health and safety objectives and a commitment to improving health and safety performance. The policy must:
    i. reflect a commitment to safety at least equal to other business aims
    ii. establish a commitment to reduce health and safety risk to as low as is reasonably practicable
    iii. establish compliance with relevant legislation as a minimum requirement
    iv. include a commitment to develop and maintain appropriate systems and arrangements for the management of safety
    v. include a commitment to continual improvement
b. the policy is communicated to members of the workforce and interested parties
c. arrangements are in place for the periodic review of the policy to ensure its relevance and appropriateness to the organisation's activities.

Leadership

The diving contractor should demonstrate:

a. appropriate senior managers take direct responsibility for coordinating the implementation and maintenance of the health and safety policy
b. there are mechanisms by which managers are held accountable for achievement of the health and safety outcomes established in the policy

c. there are mechanisms that promote the active involvement of all members of the workforce in achieving policy objectives

d. there is a program for continuous improvement.

In addition to a general health and safety policy, the diving contractor should have a number of specific policies. For example, policies such as employment, training, alcohol and rehabilitation. These policies should at the least be listed in the document.

3.1.3. Sub-element 1.2: Organisation and responsibility

Standard

The diving contractor must develop an effective organisational structure (roles and responsibilities) for implementation and maintenance of the health and safety policy.

Guidance

General responsibilities should be consistent with the general duty of care requirements and reflect the diving contractor's health and safety policy. Responsibilities should also reflect accountabilities of line management in the implementation and maintenance of the management systems and the control of hazards and risk.

Responsibilities

The diving contractor should ensure the DSMS demonstrates:

a. there is an appropriate structure for the management of safety

b. specific responsibilities are allocated for the management of safety critical activities, such as maintenance, inspection, testing and simultaneous operations

c. broad safety responsibilities consistent with authority levels are defined for each level in the organisation and for specified support personnel

d. members of the workforce are informed of their health and safety related roles, responsibilities, accountabilities and authorities

e. workforce understanding of, and adherence to, roles, responsibilities, accountabilities and authorities is verified

f. roles, responsibilities and accountabilities are regularly reviewed and maintained.

Human resources

The diving contractor should ensure the DSMS demonstrates:

a. sufficient personnel with appropriate skills are available to safely operate the diving project during normal and emergency situations

b. hours of work and shift patterns reflect health and safety considerations.

Supervision

The diving contractor should ensure the DSMS demonstrates:

a. levels of supervision at a diving project are commensurate with the level of risk associated with the tasks being performed

b. personnel and third parties entering and leaving the site are controlled.

The DSMS should also include:

a. Company organisation chart showing the reporting relationships between the corporate/company organisation and operations

b. Documented roles and responsibilities for each organisational unit/level having safety management support responsibility

c. Documented safety roles and responsibilities allocated to specific positions or individuals

d. Reporting roles and responsibilities between diving contractor and sub-contractor organisations.

3.1.4. Sub-element 1.3: Workforce involvement and communication

Standard

The DSMS must provide for the development and maintenance of mechanisms for effective participation and consultation that promote active communication and involvement of all personnel in the management of safety, and the control of workplace hazards and risk.

Guidance

Objects and targets

The DSMS should demonstrate:

a. formal health and safety consultative mechanisms are in place within the organisation and at the diving project site

b. safety representatives and or safety committees are elected or established in accordance with the relevant health and safety legislation applying to the operation

Participation

The diving contractor should demonstrate:

a. mechanisms exist for involving personnel in:

   i. the development and implementation of health and safety policies and procedures

   ii. the identification and management of hazards and risk

   iii. the preparation of the DSMS and the diving project plan

b. clearly defined issue resolution processes are in place and these are known by all concerned parties.

It is recognised that diving workforce members may not be available at the time of DSMS or DPP preparation. In this case, genuine attempts should be made to gain some diving workforce representation by other means (for example from other areas of the organisation or appropriate workforce representative bodies) to achieve a similar broad range of experience from different disciplines.

Related topic: *see Reg 4.18 (1) and (2) 'Involvement of divers and members of the workforce'*

Communication

The DSMS must demonstrate that:

a. formal and informal methods of communication are used to inform the workforce of health and safety issues

b. formal methods of communication are used to advise personnel of their health and safety related roles, responsibilities, accountabilities and authorities.

Examples of methods to communicate safety issues include:

- health and safety meetings
- toolbox talks
- e-mail correspondence
- safety alerts and bulletins
- access to safety representatives
- generally accessible relevant company databases
- external professional organisations.

Types of information that may be communicated include:

- health and safety performance reporting
- results of health & safety audits and reviews
- reporting of incidents and system failures
- reporting on hazard identification
- reporting on preventative and corrective action.

Related topic: *see Reg 4.4(2)(g)* 'Contents of DSMS'

3.1.5. Sub-element 1.4: Resources

Standard

The DSMS must demonstrate that sufficient resources are available to develop, implement and maintain the DSMS.

Guidance

Objects and targets

The DSMS must demonstrate that sufficient resources (financial, human, including specialist advisers) are available to implement the health and safety policy and maintain and improve the DSMS. Specific health and safety related programs and issues requiring allocation of resources may originate from:

- different phases of operation
- incident/hazard reports
- various initiatives such as safety campaigns
- training programs
- emergency response
- safety audits (for example, DSMS, DDP and project audits)
- changes to legislation and regulations.

3.2. Key Element 2.0: Planning

3.2.1. Aim

The diving contractor must demonstrate, through the DSMS, a systematic approach to the management of diving project hazards and risk through the identification and assessment of hazards and risk, the establishment of objectives, plans and performance standards, and the development of adequate documentation.

3.2.2. Sub-element 2.1: Hazard identification and risk management

Standard

The DSMS must provide for procedures for the systematic review of health and safety hazards and risk over the duration of the diving project.

Guidance

Objects and targets

The diving contractor should demonstrate policies, standards and procedures are in place for the systematic identification, assessment and control of hazards and risk associated with the design, development, operation and abandonment of the diving project. The demonstration should establish the:

a. company's risk acceptance criteria and basis for selection

b. scope, methods and timings for identification of hazards and assessment of risk to health and safety associated with the diving system and technology, working environment and work activities at each stage of the diving project

c. hierarchy of risk reduction measures used for the control of risk

d. methods used to ensure that risk levels are systematically reduced to ALARP

e. methods of ensuring appropriate and competent personnel (including the diving project workforce, where appropriate) are involved in the identification of hazards and selection of risk reduction measures

f. methods used to document, review and keep current information obtained during the formal hazard identification and assessment process and the selected control measures

g. methods for ensuring risk reduction measures are implemented and maintained for ongoing control

h. methods used to review the overall effectiveness of the risk management system

i. measures of risk reduction used.

Risk acceptance criteria may include:

- qualitative and/or quantitative organisational objective
- regulatory requirements
- applicable codes of practice and industry standards

The hierarchy of risk reduction measures should be used in the order of preference as listed:

- elimination
- substitution
- engineering
- procedures, training or PPE relating to control, mitigation, recovery.

Events that may prompt a review of hazards information include:

- a planned change by the operator or the diving contractor to the DPP
- a major incident (for the operator, diving contractor or in the industry generally)
- industry experience
- a scheduled hazard review.

Communication

The diving contractors should demonstrate arrangements for:

a. informing members of the workforce of the risk management system and their role in identifying and controlling hazards and risk at the diving project

b. communicating to members of the workforce of day to day changes in the existing and newly identified hazards on the diving project

c. communicating to members of the workforce of day to day changes in the status of control measures at a diving project.

Specific requirements

The diving contractor must specifically demonstrate that:

a. initiating events and possible escalation factors are considered in the risk assessment for identified hazards

b. physical and human factor hazards and risk associated with safety critical tasks (including maintenance tasks) are identified and assessed

c. how results are used in establishing organisational and diving project objectives.

3.2.3. Sub-element 2.2: Objectives, plans and performance standards

Standard

The diving contractor should establish, maintain and monitor measurable and achievable health and safety objectives, plans and performance standards consistent with the company's health and safety policy.

Guidance

Objectives and targets

The diving contractor should demonstrate, through the DSMS, that:

a. measurable and achievable health and safety objectives are routinely developed, documented and implemented for relevant function and levels within the organisation and for the facilities

b. achievements against objectives are routinely reviewed.

Health and safety management plans and performance standards

The diving contractor should demonstrate:

- plans and performance standards are routinely established for attaining objectives and targets
- plan implementation is monitored and performance against standards is appraised
- management is held accountable for meeting health and safety performance standards
- plans are updated to reflect changes in performance standards, or outcomes of appraisals of the systems effectiveness.

There should be a balance of:

- leading indicators, for example percentage close-out of audit actions, training schedule completion, etc.
- lagging indicators, for example lost time injury frequency, total recordable case frequency, etc.

Communication

The diving contractor should demonstrate safety objectives, plans and performance standards and the subsequent level of achievement are communicated to all members of the workforce and interested parties.

3.2.4. Sub-element 2.3: Sources of information (legislative and other standards)

Standard

The diving contractor must develop, implement and maintain procedures for the identification, collection, review and dissemination of information and standards relevant to the safe design and operation of the diving project.

Guidance

Objectives and targets

The DSMS should demonstrate procedures and arrangements are in place for the routine identification, collection, update and effective communication of information relevant to health and safety. Information should include but is not limited to:

a. legislation and associated amendments
b. relevant industry standards and guidance (AS/NZS, IMCA, DMAC, etc.)
c. relevant equipment/product information
d. safety bulletins issued by Regulators and industry bodies (HSE, IMCA, NOPSEMA)
e. relevant codes of practice (IMO, IMCA, IOGP)
f. incident and hazard data
g. safety alerts.

3.2.5. Sub-element 2.4: Management system documentation

Standard

The diving contractor should develop and maintain an accessible documented DSMS integrated with other management systems.

Guidance

Objectives and targets

The diving contractor should demonstrate manuals, procedures, plans, and drawings exist in either hard copy or electronic form for the management of health and safety and control of risk at a diving project. The demonstration should detail:

a. the structure of manuals and documents used to manage safety at the diving project

b. arrangements for ensuring documents are current and readily accessible to members of the workforce

c. how the documentation applies in the implementation and use of the DSMS.

3.3. Key Element 3.0: Implementation

3.3.1. Aim

The diving contractor must demonstrate through the DSMS that hazards associated with facilities, plant, equipment and work activities are controlled and arrangements are in place for responding to emergencies.

3.3.2. Sub-element 3.1: Design, construction and commissioning

Standard

The diving contractor should demonstrate that hazards and risk associated with the development, construction and commissioning of the diving project and its plant, equipment and systems are eliminated, or reduced to as low as reasonably practicable.

Guidance

Design planning

The diving contractor should demonstrate:

a. the incorporation of results from risk assessment studies as an interactive element of the design process (for both process and workplace hazards)

b. responsibility for design of facilities, work systems and activities is clearly defined

c. personnel involved in design are competent

d. methods of co-ordination exist that ensure design information is communicated between project and operational groups

e. hazards are identified and risk is assessed, eliminated or controlled at each stage of the design

f. design changes are reviewed as part of the overall risk management process.

Design input

The diving contractor should demonstrate:

a. design specifications for all major project work refer to appropriate technical standards, safe design criteria, safety performance standards, regulatory requirements, good oil-field practice and the diving contractor's safety objectives

b. task and diving project design specifications reflect human factor considerations.

Consideration of human factors issues should include:

- Task design, including:
    - the design of the task
    - the capacity for overwork, under work, or boredom

  - the effects of scheduling of work, such as stress and control of fatigue
  - ergonomic requirements
  - decision making requirements
  - communication requirements
  - availability of work standards
  - information requirements
  - instructions and training requirements
  - warning sign requirements
- Personal factors, including:
  - skill levels
  - physical attributes of personnel operating plant or conducting tasks
  - experience of employees
  - employee knowledge
  - fitness for work
- Tools, materials and technology, including:
  - design, control systems
  - access and design of tools
  - integrity and suitability of materials.

Design output

The diving contractor should demonstrate:

a. documented drawings, reports, calculations and analyses meet the design specification brief
b. ergonomics are considered in design
c. hazards and risk associated with construction, commissioning and operation are identified and assessed
d. operations and maintenance procedures and purchasing specifications include safety performance standards (for further guidance see NOPSEMA's guideline on control measures and performance standards N04300-GN0271).

Ergonomic considerations associated with design can include:

- Lay-out of and use of controls and displays
  - control should reflect the equipment functions
  - control should be accessible, easy to distinguish and arranged to promote ease of use

  - displays and controls should be arranged to encourage good working postures and allow movement and variation
  - control systems should be designed to accommodate operator intervention in computer controlled processes
  - displays should provide essential information about fault and emergency states and indicates priority where possible
  - displays should be visible and easily intelligible from all relevant working positions.
- General plant design
  - automatic safety devices should be provided where a rapid response and/or where complex information handling is required
  - automatic devices or help from other personnel should be available for periods of overload on individuals
  - plant, equipment and facilities should be designed to allow access and egress for normal maintenance operations and during emergencies
  - lifting equipment should be provided where necessary and ease of use/access should be reviewed.

Design review

The diving contractor should demonstrate:

a. formal design reviews are conducted at each stage of the design for major equipment to be used in the diving project
b. personnel from relevant functional groups are involved in the review
c. modifications to the design are initiated and controlled.

Design validation

The diving contractor should demonstrate:

a. safety critical hardware and systems design aspects are validated by independent and competent persons or bodies
b. validation of the design against the design specification and safety performance standards occurs at key design phases and at commissioning.

Construction

The diving contractor should demonstrate:

a. construction hazards and risks are identified and plans and procedures are established to control them
b. verification of the final construction against the design specification takes place.

3.3.3. Sub-element 3.2: Management of change

Standard

The diving contractor should demonstrate a management of change process that ensures changes and modifications are reviewed for hazards and risk prior to implementation and information on change requirements are communicated to all relevant members of the workforce and stakeholders. This should include operations, organisational, procedural and equipment changes.

Guidance

General

Management of Change is an essential element of a robust DSMS, as changes can introduce new hazards, or impact on existing risk control measures. Management of Change needs to track changes to the DSMS, the activities conducted by the diving contractor, the control measures employed, the technical knowledge relied upon to formulate the DSMS, overall level of risk, the human resources and competence levels required to maintain safe operations, and the DSMS itself. This monitoring of Management of Change may then trigger reviews and formal revisions to the DSMS in accordance with Regulation 4.10.

The DSMS must demonstrate that:

a. Arrangements are in place to assess health and safety risk associated with organisational and work activity changes, including appropriate authorisations to effect/execute changes

b. Arrangements are in place for controlling modifications to plant, equipment, materials, practices and procedures (including both permanent and temporary change) used in the diving contractor's operations

c. Arrangements are in place to ensure change is communicated to relevant members of the workforce and stakeholders

d. Procedures are established, implemented and maintained for the control of all relevant safety and risk management documents, plans (including the DPP), drawings and data.

Engineering

The diving contractor should demonstrate arrangements are in place for controlling modifications to plant, equipment and materials used at a diving project. The demonstration should detail how:

a. change requests are initiated, processed and authorised

b. change requests are prioritised and safety and risk implications are assessed

c. the cumulative impact of minor changes is assessed and actioned

d. those affected by change are consulted prior to implementation

e. changes are communicated to interested parties.

A management of change system will ensure that changes will be risk assessed, evaluated and communicated to members of the workforce prior to implementation. Changes should be supported by

document control systems. Features of such a system normally include for engineering and process changes:

- evaluation of hazards, resources needed and the effect on operational conditions, construction, decommissioning requirements, maintenance requirements
- assessment of risk levels
- review of change requirements in other systems (for example changes in inspection and test frequencies)
- communication of intended changes to affected groups
- training requirements.

Organisation and work systems

The diving contractor must demonstrate that arrangements are in place for controlling permanent and temporary organisational and work activity modifications and changes and this is communicated to relevant members of the workforce. The demonstration should indicate how:

a. change requests are initiated, processed and authorised
b. change requests are prioritised and safety and risk implications are assessed
c. the cumulative impact of minor changes is assessed and actioned
d. those affected by change are consulted prior to implementation.

Health and safety implications should be assessed prior to organisational or work activity changes, for example:

- change of company ownership
- change of organisational structures and reporting relationships
- changes in staffing numbers (or staffing philosophy, downsizing, upsizing or outsourcing)
- job or task redesign
- changes in duty allocations.

Documents

The diving contractor should demonstrate:

a. procedures are established, implemented and maintained for the control of all relevant safety and risk management documents, plans, drawings and data. The demonstration should indicate:
    i. how current versions of documents and data are authorised, distributed and made available to appropriate personnel. If electronic documents are used, detail measures established to make these documents available during power outages
    ii. positions responsible for documents and how they are periodically reviewed and updated when changes occur

iii. arrangements in place for the withdrawal of obsolete documents and arrangements that ensure superseded documents and data are not unintentionally used

b. documents and data are maintained and are in a format suited to the requirements of users.

3.3.4. Sub-element 3.3: Purchasing and control of materials and services

Standard

The diving contractor should develop and maintain appropriate arrangements for the control of purchased services and materials to ensure additional hazards are minimised.

Guidance

Services

The diving contractor should demonstrate:

a. tender specifications are established that incorporate health and safety requirements for all major contracts

b. procedures for the selection of contractors incorporate a review of safety requirements in accordance with the tender specification

c. arrangements are in place for the review and integration of the diving contractor and contractor safety management systems prior to commencement of activities. The demonstration should detail:

   i. mechanisms to involve contractors in hazard identification and risk assessment

   ii. arrangements for communicating safety related issues between the diving contractor and contractors

   iii. how responsibilities for emergency response are assessed and allocated between contractors and the diving contractor and revised organisation descriptions and roles and responsibilities are determined and communicated

   iv. arrangements in place for assuring contractor competence

d. procedures and arrangements for monitoring the performance of contractors during and on completion of the contract or assigned work. The demonstration should establish the arrangements for:

   i. supervision, monitoring and auditing of the contractor's performance during operation

   ii. verifying and accepting the work undertaken against the tender specification on completion of the contract.

Contractor selection criteria should consider the capacity of the tenderers to comply with the tender specifications, legislative compliance and health and safety performance. The contractor's safety management system could include:

- objectives
- plans

- records
- training
- competence
- incident reporting.

Contractors should be verified as competent in all activities critical to managing the risk associated with their assigned tasks. As a minimum requirement, induction training should be provided in relation to emergency response and permits to work.

Materials and equipment

The diving contractor should demonstrate:

a. purchase specifications and/or purchase orders incorporate health and safety requirements

b. members of the workforce are consulted prior to the purchase of materials and equipment with potential health and safety implications

c. procedures are in place for the inspection and verification of materials supplied against the purchase specification

d. arrangements are in place for the review of operating procedures and practices when purchases have health and safety risk implications

e. personnel are informed of health and safety implications associated with purchases

f. personnel are aware of their responsibilities with respect to hazard identification and risk

Purchase specifications should include compliance with relevant technical, design, operational and legislative standards: For example, Australian Standards, and Safe Work Australia publications such as National Standards and Codes of Practice.

Purchase specifications should also require the provision of information and data associated with the safe operation, handling and use. For example:

- Material Safety Data Sheets (MSDS)
- Operational and maintenance procedures and manuals.

All purchased items, equipment and material should be assessed to determine the need for changes in operating, maintenance and safety management practices and procedures. For example: training, provision of additional risk control measures, communication, etc.

3.3.5. Sub-element 3.4: Safe operational procedures

Standard

The diving contractor should develop and use operational procedures that effectively manage risk arising from operations.

Guidance

Procedures

Safe operational procedures should be developed to control or prevent risks occurring during all phases of the project. Procedures referred to in this section relate to work activities including those that adequately control hazards during normal and simultaneous operations. Other sections of these Guidelines deal with additional procedures for controlling emergencies, design and construction.

The diving contractor should demonstrate:

a. That safe operating procedures are in place for all key work activities and tasks. The demonstration should detail:
    i. safety critical procedures established as a result of risk assessment studies
    ii. procedures and arrangements for the inspection, maintenance and certification of plant and equipment.
b. That arrangements are in place for obtaining feedback on and reviewing the adequacy of operational procedures. The demonstration should indicate employees responsible for task execution are involved in this review.

Key work activities and tasks typically include the type of diving (for example, saturation, nitrox, air, and atmospheric diving systems). The DSMS must demonstrate the safe management of all types of diving contemplated with the inclusion of diving, therapeutic and emergency diving tables.

The DSMS should also describe the type of work to be conducted (construction, maintenance, inspection, etc.). If work activities or tasks have not been allowed for in the DSMS then those activities or tasks may not take place under that DSMS.

The DSMS must demonstrate that safe operational procedures are in place for both routine and non-routine work activities. The demonstration should establish that safe operational procedures are:

a. appropriate, established, implemented and maintained
b. understood, current and assessable.

The DSMS should include safe operational procedures that address:

- permit to work
- simultaneous and non-routine activities
- inspection, testing and maintenance operations for safety-critical equipment
- safe diving operations
- safe work

Permit to work

The DSMS must set out a Permit to Work (PTW) procedure that coordinates and controls safe performance all work activities, and should include, for example:

- competencies

- authorisation and issuing of permits
- distribution and display of permits
- isolation procedures
- hazard identification and risk management
- simultaneous operations
- close-out of permits etc.

The DSMS should include the diving contractor's PTW system, providing for:

a. details of the positions with responsibility under the system
b. personnel competency/training requirements appropriate to their role
c. types of work permits in use
d. type of work for which a permit is required
e. methods of hazard recognition and control
f. personal safety of those carrying out the work
g. safety of other members of the workforce
h. overall safety and integrity of the vessel etc.
i. locking, tagging and isolation procedures
j. limits on number of active permits
k. responsibility for issue and cancellation of permits
l. shift handover procedures relating to permits
m. intermediate inspections
n. procedures for suspension or cancellation of work
o. concurrent operations
p. period of permit validity, duration of work
q. close-out and sign off of permits.

Simultaneous and non-routine activities

The DSMS must set out procedures for:

a. the control of safety critical, simultaneous and non-routine activities
b. restrictions on activities when all or parts of key safety systems are unavailable.

Inspection, testing and maintenance operations for safety-critical equipment

The DSMS must set out procedures for:

a. operation of plant and equipment, auxiliary equipment and utilities

b. planned maintenance activities
c. breakdown and emergency maintenance activities etc.

Safe diving operations

The DSMS must set out procedures for:

a. saturation diving
b. air/nitrox diving
c. surface swimming activities
d. atmospheric diving systems.

Relevant good industry practice: *Maximum exposure limits for surface-orientated diving typically follow the bottom time limits set out in HSE Commercial diving projects offshore Accepted Code of Practice L103 Section 44 Table 1.*

Relevant good industry practice: *Surface swimming activities typically follow the guidance set out in Information note: IMCA D 08/19 Surface Swimming.*

Safe work

The DSMS should set out procedures for, where applicable:

a. working at heights
b. working over the side
c. confined space entry
d. pressure testing, etc.
e. diving from vessels operating in DP mode
f. underwater oxy-arc operations
g. high pressure water jetting operations
h. use of underwater air lift bags
i. lifting operations
j. compression and decompression
k. analysing and maintaining breathing mediums to meet appropriate standards
l. contingency procedures for any foreseeable emergency, including retrieving injured and unconscious divers from the water.

Related topic: *see sub-element 3.9 'First aid and emergency response'*

3.3.6. Sub-element 3.5: Materials handling and storage

Standard

The DSMS must demonstrate that the diving contractor has a safe system for handling and storing of materials.

Guidance

Materials handling

Materials handling includes both lifting equipment such as cranes, davits and A-frames, and lifting gear such as slings, shackles and wires. The DSMS should demonstrate that procedures are in place to ensure:

- safe movement of materials and personnel
- manual handling activities are carried out safely
- activities involving cranes, hoists, winches and other lifting appliances are carried out safely
- lifting gear such as slings and shackles are used in a safe manner
- lifting equipment such as containers, pallets, racks and work baskets are used in a safe manner
- risks associated with the handling of hazardous materials are controlled.

In developing the procedures the diving contractor should consider:

- certification and control for lifting gear
- isolation/depressurisation of pressurised lines if lifting over them
- the use of mechanical lifting aids, such as cranes, winches, hoists, fork lifts, and wheeled trolleys
- training in safe lifting and carrying techniques
- ensuring lifting appliances meet appropriate standards and codes
- installation requirements for items such as padeyes and monorails
- inspection, testing and maintenance requirements
- operator training
- certification and marking requirements
- inspection, maintenance and testing requirements
- lifting gear register
- training and qualifications of persons who inspect and use lifting gear.

Hazardous materials handling

The DSMS should demonstrate that procedures are in place to ensure risks associated with the handling of hazardous materials are controlled.

Procedures should be in place for the labelling, handling, storage and disposal of hazardous materials. These procedures should reference any standards, registers or manifests required by relevant legislation or international standards or codes. Prior to shipping offshore, health and safety information on the relevant material should be obtained by the diving contractor, for example:

a. MSDSs and signage for all chemicals and other materials onsite
b. storage, labelling and handling requirements for any hazardous or toxic substance
c. disposal of any materials, for example oils, hydraulic fluids, or other petrochemical products that may impact upon the environment on or off site
d. the methods used to inform members of the workforce of storage, handling and disposal methods.

Materials storage

The DSMS must demonstrate that the diving contractor has procedures in place to ensure:

a. storage areas for materials are located in appropriate areas, and are fit for purpose
b. hazardous materials are properly stored given due regards to the nature of the hazards and need for segregation.

Procedures should be in place for the safe handling, storage and disposal of any materials requiring special precautions as defined by MSDSs. In addition, segregation of materials during transport, storage or usage may be required, for example:

- storage of flammable materials in specially designated areas away from sources of heat or ignition
- segregation of oxidising materials from flammable materials.

3.3.7. Sub-element 3.6: Maintenance and repair

Standard

The DSMS must demonstrate that the diving contractor has an effective system of maintenance to ensure the safe operation of the diving plant and equipment.

Guidance

Maintenance planning

The DSMS should demonstrate that the diving contractor has standards and procedures are in place for maintaining plant, equipment and facilities.

The demonstration should:

- indicate how safety critical items are determined
- detail what maintenance procedures are applicable and validated

- establish the diving contractor's maintenance philosophy
- detail responsibilities for authorising, conducting and supervising maintenance activities
- indicate how routine maintenance frequencies are determined
- indicate how maintenance items are prioritised
- indicate how maintenance of safety critical equipment is scheduled and controlled.

Maintenance schedules should:

- be consistent with relevant codes and standards and manufacturer's recommendations
- reference the asset or tag number of each item
- reference the database or register where test and inspection certificates are contained.

Maintenance implementation

The diving contractor should demonstrate:

- inspections, maintenance, repair and plant alteration records are established and maintained
- procedures are in place for the review of hazards and risk associated with maintenance activities and tasks prior to undertaking these activities
- plant and equipment requiring registration with external authorities is identified and procedures ensure that registration is maintained
- procedures are in place for the periodic review of action against maintenance schedules to verify critical plant maintenance is being undertaken and equipment is safe before being returned to service
- procedures are established for the reporting, isolation and withdrawal of unsafe plant and equipment from service
- procedures are in place for the periodic review and improvement of maintenance procedures

The diving contractor should detail how maintenance and engineering personnel are involved in the review of procedures and planning schedules.

Related topic: *see Reg 4.4(2)(f) 'Inspection and maintenance of equipment'*

Relevant good industry practice: *Diving contractors typically follow IMCA guidance document D 018 'Code of practice on the initial and periodic examination, testing and certification of diving plant and equipment'.*

3.3.8. Sub-element 3.7: Workforce selection, competency and training

Standard

The diving contractor should ensure ongoing competence of personnel.

Guidance

Workforce selection

The diving contractor should demonstrate:

a. procedures exist for the specification, selection and placement of competent personnel detailing how competence and personal attributes relating to safety are identified and used in the selection of personnel:
    i. establishing the method for reviewing job and position specifications
    ii. indicating how minimum skills, experience and qualifications of prospective employees are assessed and verified
b. the mechanism for communicating roles and responsibilities to employees.

Typically, job specifications may be detailed in position descriptions, job descriptions and workforce members' contracts. Position descriptions or job specifications should identify minimum skills, qualifications and experience requirements including health, physical and psychological capacities for the tasks to be undertaken.

Competency and training

The diving contractor should demonstrate:

a. adequate resources are allocated to training
b. health and safety training needs are periodically assessed in conjunction with employees
c. training and development specific to health and safety occurs
d. training in relevant work and safety critical procedures is provided to new, transferring and existing employees
e. visitors, casual and new employees are inducted
f. competence of employees is assessed on appointment and periodically reviewed
g. training courses, programs, and modules are assessed, maintained and current
h. training records are maintained and reviewed (to capture refresher training requirements)
i. training programs effectiveness are reviewed (including verification of employees' competence) and modified or updated where necessary.

Training programs should be established for each level in the organisation. Training could include:

- Safety Management System, for example, legal requirements, human factors, and hazard identification and control

- Job training, for example, operational procedures, emergency response, health and safety responsibilities, training in areas specified in legislation, and training in the use of PPE, hazardous substance handling, etc.
- Induction training, for example, emergency response, health and safety responsibilities, incident / hazard reporting, permit to work, hazard identification and control, and project-specific training as required.

3.3.9. Sub-element 3.8: Workplace environment

Standard

The DSMS must demonstrate that the diving contractor has facilities and processes in place to ensure and promote a safe work environment.

Guidance

The DSMS should address (as a minimum):

a. chamber atmospheric contamination
b. housekeeping
c. hazardous marine life
d. noise level monitoring (including living chambers)
e. sign posting
f. personal protective equipment
g. temperature control
h. hygiene
i. radiation
j. working hours
k. lighting and ventilation
l. workplace amenities.

Noise level monitoring

- procedures should be in place for the identification, assessment and control of noise risks associated with the design, selection and operation of diving plant and equipment
- noise levels should be reassessed when changes occur
- design and purchase specifications establish noise levels consistent with legislative requirements.

Personal Protective Equipment (PPE)

Needs should be assessed and procedures put in place for the selection, issue, training, maintenance and use of PPE.

Temperature control (thermal comfort)

Plant, equipment and procedures should be in place to ensure that:

- as far as is practicable, heating and cooling is provided to enable members of the workforce to work in a comfortable environment
- members of the workforce are protected from extremes of heat and cold.

Hygiene

Procedures should be in place to maintain a hygienic environment for saturation diving living chambers and diving equipment.

Radiation (Naturally Occurring Radioactive Materials)

The recovery of decommissioned subsea equipment, such as manifolds, flowlines, exchangers and spools, has the potential to expose divers and surface personnel to Naturally Occurring Radioactive Materials (NORMs).

The DSMS should demonstrate that procedures are in place to assess, monitor and manage the potential risks from NORMs associated with the recovery and handling of decommissioned subsea equipment, for example:

- specialist technical personnel and equipment to facilitate the survey and inspection of recovered subsea structures offshore with respect to NORMs
- diver and surface personnel familiarisation and training on the risks involved
- ensuring NORMs affected equipment is tagged and isolated in a barricaded the area.

Working hours

Diving contractors should demonstrate arrangements are in place managing fatigue. The DSMS should specify the maximum working hours for all members of the diving team, including diving supervisors and divers. Related procedures should detail how working hours and uninterrupted periods of rest are to be managed.

Lighting and ventilation

Lighting and ventilation levels should be assessed and periodically reviewed to ensure they are adequate with regard to the location and nature of the work being done. Emergency lighting should be powered by a source independent of primary lighting power source and be immediately available in the event of primary power failure.

Workplace amenities

Facilities and amenities must conform to legislative requirements, standards and codes of practice for items such as:

- drinking water
- sufficient workspace

- surfaces and floors
- change rooms, toilets and showers
- cabins and other accommodation space.

3.3.10. Sub-element 3.9: First aid and emergency response

Standard

The diving contractor should implement effective first aid and emergency response arrangements.

Guidance

First aid

The diving contractor should demonstrate:

a. first aid requirements and facilities are identified and assessed. The demonstration should:
   i. identify the types of incidents that may occur on or in the area of the diving project
   ii. indicate the inventories of first aid equipment and facilities
   iii. detail the need for numbers, classifications and competence of trained first aid and diver medically trained personnel
   iv. detail the types of training provided to personnel
   v. detail the management of first aid coverage at remote sites (if applicable)
   vi. detail the arrangements for 24-hour cover for first aid
b. procedures are established for maintenance of first aid facilities. The demonstration should indicate the:
   i. arrangements for ensuring the security of prescription medications
   ii. arrangements for maintaining the first aid inventory
   iii. availability of additional medical advice.

The DSMS should demonstrate that:

- Medical equipment will be available at a diving site to provide first aid and medical treatment for the dive team. The requirements will depend on the type of diving and what is agreed with the diving contractor's medical advisor. Industry guidance is also available, for example 'Diving Medical Advisory Committee' (DMAC) Guidance Note 015 'Medical equipment to be held at the site of an offshore diving operation'.
- All divers have an appropriate up-to-date first-aid qualification, a component of which includes oxygen administration.
- The number of diver medics required for any particular operation will be determined by a risk assessment that takes account of the team distribution and accessibility, for example when divers are in saturation.

- Each project will have access to 24 hour specialised diving medical expertise (the precise details of those arrangements relevant to each project should be detailed within the DPP).

Emergency response

The DSMS should demonstrate that:

a. all potential emergencies are identified and procedures and facilities exist for mitigating their effects. The demonstration should indicate:
    i. the offshore command structure to manage the emergency response on the diving project
    ii. the onshore command structure to co-ordinate and support the emergency response on the diving project
    iii. the roles and responsibilities of all key employees associated with the execution of the emergency response plan
    iv. how all parties, including external agencies, are consulted regarding the execution of emergency response actions for example onshore office, police, maritime agencies and other emergency services
    v. how conflicting demands are managed where services and equipment of one contractor are shared by a number of diving contractors, for example emergency and rescue equipment
    vi. the procedures for issuing and maintenance of safety equipment, emergency equipment and specialised tools
    vii. the procedures in place for search, rescue and recovery operations
    viii. the availability of sufficient numbers of competent emergency trained response team personnel at all times
    ix. the procedures for accounting for all personnel on board in an emergency
b. a schedule of regular emergency drills and exercises are conducted for each emergency scenario
c. procedures are established to assist employees who are exposed to critical incidents at work
d. all personnel are competent to perform their roles during an emergency. The diving contractor should:
    i. indicate how the emergency command ability of the person-in-command of the diving project is assessed prior to appointment
    ii. establish the training provided and the methods of assessing competence for all key personnel.
e. procedures are established for communicating emergency response arrangements to employees
f. emergency communication procedures are established
g. emergency equipment is fit for purpose, available at appropriate locations and accessible. The demonstration should indicate contingencies in the event of damage/loss or unavailability of equipment, for example life boats
h. emergency equipment, exit signs and alarm systems are inspected, tested and maintained at regular intervals

i. the effectiveness of the emergency response system is periodically assessed, reviewed and improved.

The DSMS should include the plans and procedures for all identified emergency scenarios that could reasonably be expected to occur during each phase of the diving project. Identified scenarios may include, for example:

- Serious injury or death
- Adverse weather
- Dynamic Positioning (DP) vessel loss of position
- Working adjacent to live hydrocarbon facilities (hydrocarbon release)
- Subsea hydrocarbon releases, for example pipelines or flowlines
- Diving emergencies, for example, emergency decompressions and hyperbaric rescue and recovery
- Events requiring evacuation of the diving vessel
- Toxic release.

The emergency response plan should reflect the combined diving contractor and operator procedures and be discussed and agreed with all relevant parties. Emergency response procedures should:

- Have clear contents and directions for use
- Contain up to date names and contact numbers for key personnel and organisations
- Clearly show the chain of command and lines of communication to be put in place during an emergency
- Define the responsibilities of essential personnel and outline the basic procedures for responding to emergencies
- Ensure all relevant personnel and organisations are kept informed of the plan and of any updates

The plan should contain or reference a program of emergency drills and exercises which:

- Involves all relevant facility and support personnel
- Is closely aligned with emergency scenarios identified
- Hyperbaric evacuation during adverse weather or a cyclone response sail away events (if applicable)
- Includes a review on completion of the exercises and allowance for updates if necessary

Bell emergency recovery

Personnel, plant and procedures should be provided to enable the diving bell to be rescued if the bell is accidentally severed from its lifting wires and supply umbilical.

Where surface diving is specified as a means of rescuing a lost bell, a full surface diving system should be available, including a DDC, suitable LARS capable of recovering an unconscious diver to the surface and any other equipment needed to reduce risks to the bell rescue diver to ALARP.

Where use of an ROV is specified as a means of rescuing a lost bell, the bell should be suitably equipped for ROV intervention, and demonstrate effective rescue through appropriate emergency drills and exercises.

Provisions and services on-board the bell, independent of the surface as necessary to sustain the bell's occupants for an appropriate amount of time to facilitate rescue.

Hyperbaric Evacuation, Escape and Rescue

Details of the provisions for evacuation, escape and rescue of divers from saturation should include:

- hardware used for evacuation, for example, HRC, SPHL or similar
- when there is more than 18 Bar pressure differential between the divers to be evacuated, it should be possible to maintain a difference in pressure during evacuation.
- method of over-boarding
- where the project geographical location requires a means of transporting SPHL, HRC, or similar to a shore based HRF, for example, use of dedicated HRV
- means of recovering HRC or SPHL to HRV
- means of maintaining HRC life support
- details of SPHL/HRC towing and LSP connection trials
- details of HRF personnel and maintenance requirements
- SPHL/HRC interface trials with HRF
- details of thermal balance trials for SPHL, HRC or similar.
- suitability of SPHL/HRC (for example, markings and instructions to IMO standards)
- SPHL systems and services as necessary to provide autonomous life support for an appropriate minimum time to facilitate rescue
- SPHL/HRC arrival at a place of safety (HRF) within 75% of its life support capacity
- provisions for life support hook-up.

Relevant good industry practice: *Diving contractors typically follow IMCA guidance document D 052 Guidance for Hyperbaric Evacuation Systems.*

3.4. Key Element 4.0: Monitoring and evaluation

3.4.1. Aim

The DSMS must demonstrate that the diving contractor has processes in place to ensure diving project plant, process, work system and management arrangements are measured, monitored and evaluated, and where deficiencies are identified, corrective actions are implemented.

3.4.2. Sub-element 4.1: Inspection, testing and monitoring

Standard

The DSMS must demonstrate that the diving contractor has effective systems of inspection, testing and monitoring to ensure technical integrity of diving related plant and equipment associated with the diving project.

Guidance

Monitoring programs

The DSMS must demonstrate:

a. appropriate condition monitoring programs exist
b. regular inspections of workplace and facilities are carried out
c. informal hazard inspections take place
d. inspection and tests of safety critical risk control and mitigation devices are regularly conducted. The demonstration should indicate how:
    i. inspection and test frequencies are determined
    ii. completion of test schedules is verified
e. procedures exist for the safe execution of inspection and test activities. Inspection processes should seek input from personnel required to undertake the tasks being inspected
f. inspection, test and monitoring equipment is maintained, stored and calibrated to an appropriate standard
g. inspection reports contain recommendations for the prioritisation and implementation of corrective actions
h. responsibility for implementing corrective actions arising from inspection reports is assigned to specified personnel
i. arrangements exist for verifying that corrective actions have been completed
j. corrective actions arising from inspections are evaluated to determine their effectiveness
k. workplace environmental monitoring is conducted (where appropriate) and records of the results are maintained
l. inspection and testing results are periodically reviewed and used in assessment of the work priorities of the diving project.

Equipment subject to inspection, testing and monitoring typically includes, for example:

- life support equipment
- diving plant and equipment, including control, electrical and analytical systems
- emergency power

- lifting and rigging equipment
- communications equipment
- emergency response equipment
- pressurised equipment.

The frequency of routine inspections should match:

- the assessment of the general risk
- good industry practice
- manufacturer's recommendations
- appropriate Australian (or international) standards or codes of practice.

The inspection, testing and monitoring of diving plant and equipment should be in accordance with relevant good industry practice, for example, IMCA D018 'The initial and periodic examination, testing and certification of diving plant and equipment'.

Related topic: *see Reg 4.4(2)(f) 'Inspection and maintenance of equipment'*

3.4.3. Sub-element 4.2: Health monitoring systems

Standard

The DSMS must demonstrate the diving contractor will monitor and evaluate the effects of the work environment on the health of members of the workforce.

Guidance

Health monitoring

The DSMS should demonstrate that:

a. health monitoring requirements are identified and procedures exist for conducting monitoring
b. where required by legislation, the health of personnel exposed to specified hazards is monitored and recorded
c. health monitoring records are periodically reviewed and programs are established to reduce health risk
d. pre-employment assessments are carried out.

A program of workforce health monitoring may consist of:

- pre-employment medicals
- ongoing occupational medicals

- lifestyle assessments
- pre- and post-saturation medicals (for example, performed on site)
- specific monitoring and analysis for identified hazards, for example, noise and hearing loss, hazardous substances and exposure effects, diving related illness, etc.

Rehabilitation

The diving contractor should demonstrate procedures exist for rehabilitation and supervised return to work for employees injured or suffering ill health.

3.4.4. Sub-element 4.3: Incident/hazard investigating and reporting

Standard

The DSMS must demonstrate that the diving contractor has an effective system of reporting and investigating hazards and incidents and establishes measures to prevent recurrence.

Guidance

Investigation and reporting

The DSMS should demonstrate:

a. procedures exist for reporting and investigating hazards and incidents and implementing corrective actions. The diving contractor should:
    i. indicate how the level of investigations is determined
    ii. specify the reporting requirements
    iii. indicate the roles and responsibilities of employees, supervisors, health and safety representatives and visitors for reporting and investigating incidents
    iv. indicate who is involved in the investigation of different categories of incident or accident
    v. indicate how the investigative information is used
    vi. indicate how the quality of the investigation is reviewed
    vii. indicate how the close-out of corrective actions is monitored
    viii. indicate how regulatory reporting requirements are satisfied
    ix. indicate the methods of informing employees of significant incidents and corrective actions
b. employees, supervisors, health and safety representatives and managers involved in incident and hazard investigation and reporting are trained and competent.

Related topics: *see Reg 4.23(1)(c) 'Details to be reported'*

3.4.5. Sub-element 4.4: Health and safety information and reports

Standard

The diving contractor should maintain a system for the analysis, dissemination, storage/archiving and retrieval of information relevant to health and safety.

Guidance

Managing health and safety information

The diving contractor should demonstrate:

a. procedures are in place for the collection, maintenance, and confidential retention of employee health and safety records

b. documents and data relevant to health and safety are collected, disseminated, filed and retained. The demonstration should indicate:

   i. the types of documents and data collected

   ii. how health and safety documents are used.

Documents, reports and data collected by the operator can include:

- safety alerts
- hazard and Incident reports
- log books
- audit close-out reports
- inspection maintenance records
- hazards registers or similar
- statistical information
- training records
- calibration results
- non-destructive testing reports
- measures of injury or loss potential.

Where appropriate, analysis of the data should take place and reports should be developed that provide personnel with indicators of the effectiveness of the health and safety programs and initiatives. Reports and data should be retained for periods consistent with part 9 of the regulations.

Analysis and reporting of health and safety performance data

The diving contractor should demonstrate:

a. procedures exist for the collection and analysis of health and safety performance data. The diving contractor should describe the lead and lag indicators used for measuring health and safety performance

b. regular reports on health and safety performance are produced and disseminated to relevant personnel.

Procedures should specify the method of collecting and analysing incident data to provide information on:

- the location and nature of incidents
- the frequency and severity of incidents
- the effectiveness of hazard and risk controls.

This information should be provided to employees and to management to allow trends to be identified and performance to be monitored.

3.5. Key Element 5.0: Auditing and review

3.5.1. Aim

The diving contractor should demonstrate that auditing and review arrangements are in place to ensure the DSMS is implemented, effective and continually improving.

3.5.2. Sub-element 5.1: DSMS audit

Standard

The diving contractor should periodically verify the operation of the safety management arrangements.

Guidance

Audit program

The DSMS should demonstrate that:

a. an audit program and procedures are established, implemented and maintained to verify that health and safety management arrangements are being operated to specified performance standards. The demonstration should indicate:

   i. the schedule of internal and independent audits

   ii. the methodology for conducting audits, including: audit scope and objectives, criteria for selection of audit teams and leaders and reporting requirements

   iii. how relevant employees are involved in the audit process

b. procedures exist for the reporting of audit results and the implementation of corrective actions. The demonstration should indicate how:

   i. corrective actions and findings are recorded and prioritised

   ii. affected employees are made aware of audit results and corrective actions

iii. corrective actions are reviewed for appropriateness prior to implementation

iv. follow-up action is monitored for timely close-out

The diving contractor's audit system should evaluate whether safety procedures and management arrangements are documented, implemented, used as intended by the organisation, and effective (including closing out audit actions).

3.5.3. Sub-element 5.2: Review and improvement

Standard

The diving contractor should regularly review the DSMS to assure the arrangements adopted are effective in meeting the diving contractor's policies and objectives.

Guidance

Review and improvement

The diving contractor should demonstrate accountable senior management periodically review the effectiveness of the safety management system. The demonstration should indicate:

a. when reviews take place and who is involved

b. the sources of information used to determine if the system is adequate and policy is complied with and objectives are being met

c. how the diving contractor makes use of the review

d. how outcomes are communicated to employees

e. what continuous improvement plans exist.

Information used in a management review may include:

- changes to legislation
- changes in business objectives and expectations
- changes in business/operational activities
- changes in technology
- changes in the organisations structure and personnel
- workforce feedback
- results of audits and associated actions
- results of accident and incident investigations
- sampling of work practices
- sampling of safety perception/safety 'climate' (for example surveys)
- performance against objectives and targets

- review of community expectations

Information and benchmark data from other organisations and industries may also be used if appropriate.

4. Glossary and abbreviations

4.1. Glossary of terms

This section should be read in conjunction with section 2.1.5, which provides regulatory definitions of terms provided in the OPGGS Act or the regulations. Definitions provided in section 2.1.5 have not been repeated here.

Bell diving: carrying out diving operations using a close diving bell, otherwise known as a submersible diving chamber (SDC).

Bottom time: in relation to a dive, the total elapsed time from when a diver is subjected to pressure greater than atmospheric pressure until the time (next whole minute) when that diver's decompression begins (measured in minutes), and is used to determine that diver's decompression profile for that dive.

Breathing medium: gas or gases delivered to a diver for the purpose of life support.

Classifying Authority: an approved body qualified to:

- classify ships, barges or mobile platforms
- verify the design, construction and operating capability of diving plant and equipment.

Closed bell: see *Diving bell*.

Commonwealth waters: the waters of the sea that comprise the offshore areas of each State and of each Territory.

Decompression sickness or decompression illness: trauma associated with and as a result of an inert gas coming out of solution and forming bubbles in the blood and tissues of a diver during or when the pressure is reduced, often to atmospheric pressure.

Dive: the process of a diver, diving bell or a manned submersible entering the water and being subjected to pressure greater than normal atmospheric pressure.

Diver: any person who is engaged in diving operations for the purpose of diving - see regulation 4.1.

Diver's Attendant: a person, with a diving qualification, who is a member of a dive team and engaged in tendering the diver's umbilical.

Diver's stage: equipment, not being a closed diving bell, by which a diver is raised from or lowered to an underwater work-site and which is designed to carry more than one person.

Diving bell: any compression chamber which:

- is used to transport divers to and from the underwater work-site
- is designed for use under the surface of water in supporting human life.

Also termed 'closed' diving bell or submersible decompression chamber.

Diving superintendent: a person placed in overall charge of a diving operation to co-ordinate the diving activities and to act as a stand-in for the diving supervisor where necessary.

Diving supervisor: a person who is appointed in writing to supervise diving operations.

Dynamic positioning: the positioning of or repositioning of a vessel in or to a chosen location by automatic means and without recourse to any physical mooring arrangements.

Equivalent air depth: diving technique where the decompression required for a breathing mixture is based on the partial pressure of nitrogen (pN_2mix) in the breathing mixture equivalent to pN_2air in air for a particular depth. Used with enriched air/nitrox mixtures.

Emergency: an emergency affecting or likely to affect the health or safety of any person, the environment or the integrity of the facilities in the adjacent area.

Enriched air: breathing quality air that has had oxygen added to it, usually with oxygen percentage in the range of 30% to 40%. Also called *Nitrox*.

Hazard: a source of potential harm or a situation with a potential to cause loss.

Inert gas: a discrete, gaseous component of the breathing medium which does not react with body tissue and is not chemically altered through contact with it.

Inspector: a person appointed under section 602 of the OPGGS Act.

Life support technician: a person who is responsible for maintaining suitable environmental parameters.

Loss: any negative consequence, financial or otherwise.

Limiting line: a line shown in dive tables which indicates time limits (bottom times) beyond which decompression schedules are less safe. Diving for periods indicated below this line carries a greater risk of decompression sickness and this risk increases with the increase in time.

Mixed gas: a mixture of discrete gases delivered to a diver as a breathing medium.

Nitrox: nitrogen and oxygen mixture used as a replacement for air in surface supplied diving. See *Enriched air*.

Repetitive dive: any dive made by a diver within a period of a previous dive by that diver where excess residual inert gas is still present in the body tissues of that diver as a result of a previous dive.

Safety case: the safety case (within the meaning given by Part 2 of the Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009) in relation to the facility associated with a diving project.

Saturation diving: a diving technique where the diver has reached the full saturation state for the pressure and breathing mixture being used. When this state has been reached the time required for decompression is not further increased in relation to the duration of the dive.

Scuba: self-contained, underwater breathing apparatus (not regarded as a suitable technique for offshore diving operations).

Self-contained breathing equipment: equipment supplying a diver with breathing medium from cylinders carried by that diver.

Surface oriented diving: is diving using equipment supplied with breathing gas using a diver's umbilical from the surface, either from the shore or from a diving support vessel, sometimes indirectly via a wet diving bell.

Surface supply breathing apparatus: equipment supplying a diver with breathing medium through a hose from a compressor or cylinders on the surface.

Wet bell: a specially designed, fully submersible diver's stage which can entrap a bubble of air or mixed gases and be used under water by a diver as a simple habitat or as a supply point for lightweight equipment required at a work-site.

4.2. Common diving abbreviations

Listed below are common abbreviations used in the occupational diving industry:

ADAS	Australian Diver Accreditation Scheme
ALARP	as low as reasonably practicable
AS	Australian Standards
AS/NZS	Australian/New Zealand Standards
ATA	atmospheres absolute
ATM	atmospheres
BIBS	built in breathing system
BT	bottom time
CO	carbon monoxide
CO2	carbon dioxide
CPR	cardio pulmonary resuscitation
CNS	central nervous system
DCIEM	Defence and Civil Institute of Environmental Medicine - (Canada)
DCS	decompression sickness
DDC	deck decompression chamber
DMAC	Diving Medical Advisory Committee (IMCA)
DMT	diving medical technician
DP	dynamically positioned
DPP	diving project plan
DPV	dynamically positioned vessel
DSMS	diving safety management system
DSV	diving support vessel
EAD	equivalent air depth
EAN	enriched air nitrox
EBT	effective bottom time
ECU	environmental control unit
ERP	emergency response plan
SHLB	self-propelled hyperbaric lifeboat
HPNS	high pressure neurological syndrome
HRC	hyperbaric rescue chamber
HRF	hyperbaric reception facility

IMCA	International Marine Contractors Association
JHA	job hazard analysis
JSA	job safety analysis
LARS	launch and recovery system
LST	life support technician
LSS	life support supervisor
MSDS	materials safety data sheets
MSW	metres of sea water
NITROX	Air in which the 21% O2, 79% N2 has been changed, usually enriched air
PMS	planned maintenance system
ppm	parts per million
ROV	remotely operated vehicle
SCUBA	self-contained underwater breathing apparatus
SOP	standard operating procedures
SUR 'D'O2	surface decompression on oxygen
TUP	transfer under pressure

5. Supplementary information sources

5.1. NOPSEMA guidance and publications

5.1.1. Legislation

A copy of the Act and the Regulations (a legislative instrument) can be found at https://www.legislation.gov.au/.

5.1.2. Diving specific publications

Documents published by NOPSEMA that are relevant to diving operations are available on NOPSEMA's website at https://www.nopsema.gov.au/safety/diving-operations/ and include the following:

a. Register of diving safety management systems and diving project plans
b. Diving submission assessment policy (N-04500-PL0054)
c. Diving project plan concordance table (N-04500-FM1453)
d. Diving safety management system concordance tables (N-04500-FM0711)
e. Diving safety management system submission cover sheet (N-04500-FM1000).

5.1.3. General publications

Other documents published by NOPSEMA that diving contractors and operators should consider when preparing and implementing a DSMS and/or DPP are available on NOPSEMA's website at https://www.nopsema.gov.au/safety/safety-resources/ and include:

a. Assessment policy (N-04000-PL0050)
b. Making submissions to NOPSEMA guideline (N-04000-GL0225)
c. Hazard identification guidance note (N-04300-GN0107)
d. Risk assessment guidance note (N-04300-GN0165)
e. ALARP guidance note (N-04300-GN0166)
f. Control measures and performance standards guidance note (N-04300-GN0271)
g. Involving the workforce guidance note (N-04300-GN1054)
h. Emergency planning guidance note (N-04300-GN1053)

5.2. Australian and international guidance and publications

5.2.1. UK Health and Safety Executive

A range of publications, including the UK approved codes of practice and diving information sheets, are available at http://www.hse.gov.uk/diving/index.htm.

5.2.2. International Marine Contractors Association (IMCA)

The IMCA website can be found at https://www.imca-int.com/publications/.

Relevant publications include the Diving Code of Practice and a range of diving guidance and technical reports in the IMCA 'D' series, published by the Diving Division of IMCA.

The publications of the independent Diving Medical Advisory Committee (DMAC), are also available from the IMCA website at http://www.imca-int.com/www/imca/publications/dmac/, or the DMAC website at http://www.dmac-diving.org/.

5.2.3. International Maritime Organisation (IMO)

IMO documents the 'Code of Safety for Diving Systems' and the 'Guidelines and specifications for hyperbaric evacuation systems' are available on the IMO website at http://www.imo.org.

5.2.4. International Association of Oil and Gas Producers (IOGP)

The IOGP diving related publications include the following:

a. Diving Recommended Practice (Report No. 471)

b. Saturation Diving Emergency Hyperbaric Rescue Performance Requirements (Report No. 478).

All IOGP Diving publications can be found at https://www.iogp.org/oil-and-gas-safety/diving/.