Diving Safety Procedure

Section 1 - Purpose and Scope

(1) This Procedure outlines The University of Queensland's requirements for general diving work as part of the Health, Safety and Wellness Policy. The purpose is to ensure the health, safety and well-being of divers and compliance with relevant legislative requirements.

(2) This Procedure applies to all workers participating in general diving work and staff including supervisors and senior officers who have responsibilities to ensure the health and safety of the workers and those exposed to their activities. Undertaking diving work exposes workers and other persons to particular risks which must be adequately controlled.

(3) The objectives of this Procedure are to:

a. outline responsibilities of senior officers, supervisors and diving work participants;
b. ensure adequate planning and OHS risk management of general diving work;
c. ensure adequate information is provided to all stakeholders for approval and emergency preparedness and response;
d. ensure the risk management process for general diving work adequately identifies hazards and controls, and is documented and recorded; and
e. ensure that the University holds adequate records of any general diving work being undertaken by its workers.

Section 2 - Process and Key Controls

(4) Supervisors and senior officers must ensure the following processes are completed before undertaking general diving work:

a. ensure the University holds current competency and medical fitness records for all divers;
b. complete a work off-campus plan as per the Work Off-Campus Procedure including the dive plan, risk management and emergency procedures; and
c. assign duties to workers competent to undertake the role.

(5) Supervisors and senior officers must ensure the following processes are completed during general diving work:

a. conduct the diving work in accordance with the dive plan and risk assessments; and
b. complete the dive record as soon as practicable.

(6) Supervisors and senior officers must ensure the following processes are completed after undertaking general diving work:

a. submit dive records to relevant diving officer.

(7) To ensure the safety of workers and other persons, the following controls must be considered in the planning and conduct of general diving work:

a. annual medical screening of all divers against fitness criteria given in AS 2299.1 Occupational Diving Operations Part 1: Standard Operational Practice;
b. minimum competency standards for all divers;
c. supervision of diving work;
d. adequate resourcing of diving work;
e. dive plan and risk assessments;
f. first aid personnel and equipment onsite including oxygen resuscitation equipment;
g. effective emergency procedures including evacuation to a recompression chamber;
h. breathing apparatus and equipment preventative maintenance schedules including checks of gauge accuracy; and
i. breathing gas testing.

Section 3 - Key Requirements

Part A - Registration of Workers undertaking Diving Work

(8) All individuals seeking to engage in diving work under the auspices of the University must apply to a diving officer, forwarding the following:

a. a completed Diver Registration Form;
b. copies of their relevant diving qualifications;
c. copies of their diving logbooks sufficient to demonstrate current competency;
d. a copy of their current certificate of medical fitness to dive; and
e. a copy of their current First Aid and Oxygen Administration qualifications (if held).

(9) All persons undertaking diving activities under the auspices of the University must complete an induction at an interval of no more than 5 years.

(10) Dive supervisors who have completed the University's in-house training for dive supervisors may provide induction for divers.

(11) All persons undertaking diving work must be at least 18 years of age.

(12) Competency records should be uploaded to the UQSafe – Certifications module when the system has been implemented and linked to UQ Safe - Field.

Certificates of Medical Fitness

(13) All individuals engaged in diving work must provide to a dive officer a current certificate of medical fitness to dive.

(14) The certificate must:

a. be issued by a registered medical practitioner with training in underwater medicine; and
b. state the following:
    i. The name of the person to whom it is issued;
    ii. its date of issue and its expiry date;
    iii. whether or not the person to whom it is issued is, in accordance with the fitness criteria of AS/NZS 2299.1 (2007) Appendix M, medically fit to carry out diving work; and

iv. any conditions in relation to the type of diving work the person to whom it is issued is fit to carry out, or the circumstances in which the person is fit to carry out general diving work.

(15) In addition, the certificate must:

a. be issued within the past 12 months; and
b. have not expired or been revoked.

(16) See Diving Safety Guideline clauses 12-13 for further detail.

Competency Requirements for Diving Work

Divers

(17) Scientific Scuba Diver:

a. Hold a current ADAS Part 1 restricted or higher certification, OR hold a certification under the Australian Qualifications Framework that is relevant in a substantial way to the work, OR hold a certificate for general diving work that is equivalent to the knowledge and skills of a recreational dive supervisor and has provided to the Diving Officer proof of the knowledge and skills of how to safely conduct the work being undertaken (see Diving Safety Guideline clauses 14-20 for further guidance on acceptable forms of proof).

(18) Limited Scientific Scuba Diver:

a. Hold at least 'Rescue' diver certification with a recognised diver training organization; and
b. Have verified relevant experience of at least 15 hours of diving using the breathing apparatus to be used of which 500 minutes were spent within 10 metres of the working depth or deeper.

(19) SSBA Diver:

a. Hold a current ADAS Part 2 Restricted or higher qualification.

(20) Scientific CCR Diver:

a. Hold a current ADAS Part 1 restricted or higher certification, OR hold a certification under the Australian Qualifications Framework that is relevant in a substantial way to the work, OR hold a certificate for general diving work that is equivalent to the knowledge and skills of a recreational dive supervisor and has provided to the Diving Officer proof of the knowledge and skills of how to safely conduct the work being undertaken (see Diving Safety Guideline clauses 14-20 for guidance on acceptable forms of proof); and
b. Hold at least a certification from a recognised diver training organisation as a diver for the type of CCR proposed to be used; and
c. Have verified relevant experience of at least 30 hours of diving using the CCR to be used of which 1000 minutes were spent within 10m of the work depth or deeper.

(21) Visiting Scientific Divers:

a. Be not resident in Australia; and
b. Hold at least open water diver certification (ISO 24801.2 (2014)) from a recognised diver training organization; and
c. Have verified relevant experience of at least 60 hours of scientific diving using the breathing apparatus to be used of which 500 minutes were spent within 10 metres of the working depth or deeper; and

d. Provide a letter from the diver's employer verifying competency as a scientific diver to at least the level required in the diver's current country of residence.

   Note: Visiting scientific divers may also demonstrate competency by clauses 17, 19 or 20 above.

Dive Supervisors

(22) Persons qualified to dive under clause 18 may not act as dive supervisors.

(23) Persons appointed to supervise diving must be competent to undertake the diving work, and sufficiently experienced to manage the risks.

(24) Dive supervisors must have at least 15 hours experience as a scientific diver.

(25) Dive supervisors must attend an induction by a diving officer prior to commencing work in the role or at least every 5 years.

(26) Supervisors must ensure any diver they appoint as a dive supervisor has sufficient knowledge and skills in the diving work and risk management.

Diver's Attendants

(27) Diver's attendants must:

a. be competent in first aid, CPR, and the provision of oxygen as per the First Aid Guideline;
b. have a working knowledge of the requirements of the underwater work;
c. have a working knowledge of the signals in use;
d. have a working knowledge of the decompression procedures in use; and
e. have a working knowledge of the diving plant and equipment in use.

(28) Where the diver's attendant is the sole person remaining at the surface, the diver's attendant must also be:

a. competent to recognise and manage diving accidents to at least the level of clause 17 Scientific Scuba Diver, clause 21 Visiting Scientific Diver, or 'Rescue Diver'.

Nitrox or Oxygen Enriched Air

(29) Dive supervisors and divers using nitrox or oxygen enriched air must:

a. hold at least a certification from a recognised diver training agency as a nitrox or oxygen enriched air diver.

(30) Persons undertaking filling of gas cylinders with nitrox or oxygen must be trained to a minimum of ISO 13293:2012 Recreational Diving Services - Requirements for gas blender training programs.

First Aid and Emergency Readiness

(31) Supervisors and dive supervisors must ensure that sufficient first aid resources and trained personnel are available at the dive site. The dive plan should identify the minimum level of first aid equipment, quantity of oxygen and levels of trained personnel in accordance with the First Aid Guideline. As a minimum, at least 2 persons on site must hold current certificates for first aid, CPR, and the provision of oxygen equivalent to HLTAID003, HLTAID001, and HLTAID007. Where practicable, all members of the dive team should hold current certificates to at least this level.

Part B - Personnel Required

(32) At every diving operation there must be sufficient personnel to ensure that diving is performed safely. The minimum number and designations of personnel required for various types of compressed gas diving operations are set out under clauses 34-60. The provision of extra personnel should always be considered as a means to reduce risk, particularly in dives involving particular hazards, those involving unusual underwater tasks, or for planned dive durations greater than one hour. Sufficient personnel competent with first aid and oxygen administration, as set out in above clause 31, must be present.

(33) Where dives are not being conducted in low visibility, and neither diver has a decompression requirement, two divers may act as an in-water standby diver to each other, i.e. a buddy team.

Scuba

Free-swimming Scuba Operations in Open Water

(34) The following personnel must be present:

a. one dive supervisor;
b. two divers, each acting as in-water standby diver for the other diver; and
c. one diver's attendant.

(35) The dive supervisor may act as either a diver or diver's attendant. The minimum team is therefore three persons. If the dive supervisor is acting as a diver, the supervisor's surface duties must be delegated to the attendant.

(36) One diver's attendant may attend to more than one pair of divers if:

a. supported by a documented risk assessment;
b. the divers are working in the same immediate vicinity; and
c. the dive team's ability to respond to an emergency is not compromised.

Scuba Operations in Water Depths up to 1.5m

(37) The following personnel must be present:

a. one dive supervisor;
b. one diver; and
c. one diver's attendant.

(38) The dive supervisor may act as either a diver or diver's attendant if:

a. supported by a documented risk assessment;
b. the dive team's ability to respond to an emergency is not compromised;
c. the diving work does not involve:
    i. poor visibility;
    ii. danger to the diver from currents either natural or associated with man-made structures such as dams, weirs, inlets, outlets or sluices;
    iii. risk of entrapment of the diver or entanglement and provides unimpeded access to the surface; or
    iv. a situation in which third party assistance is not readily available in an emergency.

(39) If a dive team of two is used, the attendant must maintain visual contact with the diver and must be capable of

removing the diver from the water in an emergency or if the diver requests assistance. The minimum team is therefore two persons.

Scuba Operations in Aquarium Tanks, Swimming Pools or in Sheltered Open Water

(40) The following personnel must be present:

a. one dive supervisor;
b. two divers, each acting as in-water standby diver for the other diver; and
c. one diver's attendant.

(41) The dive supervisor may act as either a diver or diver's attendant. The minimum team is therefore three persons. If the dive supervisor is acting as a diver, the supervisor's surface duties must be delegated to the attendant.

(42) In exceptional circumstances, where minimal risk is present, the supervisor and Head of School or Organisational Unit may authorise a minimum team of two divers if:

a. supported by a documented risk assessment;
b. the dive team's ability to respond to an emergency is not compromised;
c. the diving work does not involve:
    i. poor visibility;
    ii. danger to the diver from currents either natural or associated with man-made structures such as dams, weirs, inlets, outlets or sluices;
    iii. risk of entrapment of the diver or entanglement and provides unimpeded access to the surface; or
    iv. a situation in which third party assistance is not readily available in an emergency.

(43) If a dive team of two is used, each diver must maintain visual contact with the diver and must be capable of removing the diver from the water in an emergency or if the diver requests assistance. The minimum team in exceptional circumstances is therefore two persons.

Scuba Operations Utilising Lifelines

(44) The following personnel must be present:

a. one dive supervisor;
b. one diver;
c. one diver's attendant; and
d. one standby diver.

(45) The dive must be controlled by a dive supervisor on the surface. Where supported by a documented comprehensive risk assessment, the supervisor may act as the diver's attendant providing this does not compromise the team's ability to respond to an emergency. The dive supervisor must not be nominated as a diver or standby diver. The minimum team is therefore three persons.

SSBA

SSBA Operations in Water Depths up to 1.5m

(46) The following personnel must be present:

a. one dive supervisor;

b. one diver; and
c. one diver's attendant.

(47) The dive supervisor may act as either a diver or diver's attendant if:

a. supported by a documented risk assessment;
b. the dive team's ability to respond to an emergency is not compromised;
c. the diving work does not involve:
    i. poor visibility;
    ii. danger to the diver from currents either natural or associated with man-made structures such as dams, weirs, inlets, outlets or sluices;
    iii. risk of entrapment of the diver or entanglement and provides unimpeded access to the surface; or
    iv. a situation in which third party assistance is not readily available in an emergency.

(48) If a dive team of two is used, the attendant must maintain visual contact with the diver and must be capable of removing the diver from the water in an emergency or if the diver requests assistance. The minimum team is therefore two persons.

SSBA Operations to 20m

(49) The following personnel must be present:

a. one dive supervisor;
b. one diver;
c. one diver's attendant; and
d. one standby diver.

(50) The dive must be controlled by a dive supervisor on the surface. Where supported by a documented comprehensive risk assessment, the supervisor may act as the diver's attendant providing this does not compromise the team's ability to respond to an emergency. The dive supervisor must not be nominated as a diver or standby diver. The minimum team is therefore three persons.

SSBA Operations in 20 to 30m Depth

(51) The following personnel must be present:

a. one dive supervisor;
b. one diver,
c. one diver's attendant;
d. one standby diver; and
e. one standby diver’s attendant.

(52) The dive must be controlled by a dive supervisor on the surface. Where supported by a documented comprehensive risk assessment, the supervisor may act as the diver's attendant providing this does not compromise the team's ability to respond to an emergency. The dive supervisor must not be nominated as a diver or standby diver. The minimum team is therefore four persons.

SSBA Operations to Greater than 30m Depth

(53) The following personnel must be present:

a. one dive supervisor;
b. one diver;
c. one diver's attendant;
d. one standby diver; and
e. one standby diver’s attendant.

(54) The dive must be controlled by a dive supervisor on the surface. The minimum team is therefore five persons.

CCR

Free-swimming CCR Operations in Open Water

(55) The following personnel must be present:

a. one dive supervisor;
b. two divers, each acting as in-water standby diver for the other diver; and
c. one diver's attendant.

(56) The dive supervisor may act as either a diver or diver's attendant. The minimum team is therefore three persons. If the dive supervisor is acting as a diver, the supervisor's surface duties must be delegated to the attendant.

(57) One dive attendant may attend to more than one pair of divers if:

a. supported by a documented risk assessment;
b. the divers are working in the same immediate vicinity; and
c. the dive team's ability to respond to an emergency is not compromised.

CCR Operations in Water Depths up to 1.5m

(58) The following personnel must be present:

a. one dive supervisor;
b. one diver; and
c. one diver's attendant.

(59) The dive supervisor may act as either a diver or diver's attendant if:

a. supported by a documented risk assessment;
b. the dive team's ability to respond to an emergency is not compromised;
c. the diving operation does not involve:
    i. poor visibility;
    ii. danger to the diver from currents either natural or associated with man-made structures such as dams, weirs, inlets, outlets or sluices;
    iii. risk of entrapment of the diver or entanglement and provides unimpeded access to the surface; or
    iv. a situation in which third party assistance is not readily available in an emergency.

(60) If a dive team of two is used, the attendant must maintain visual contact with the diver and must be capable of removing the diver from the water in an emergency or if the diver requests assistance. The minimum team is therefore two persons.

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Part C - Diving Procedures

Dive Plan

(61) A written dive plan on the approved form must be:

a. completed by the nominated dive supervisor;
b. submitted to the relevant dive officer with sufficient time to adopt any changes advised; and
c. approved by the supervisor prior to diving work commencing.

(62) Dive plans should be attached to the UQSafe – Field work off-campus plan. Approval of an attached dive plan by the supervisor is completed by approving the field work plan.

Emergency Preparedness

(63) Emergency plans must be developed in writing and provide details of the procedures for:

a. a diver to be recovered to the dive tender or shore or place where first aid can be effectively provided;
b. the minimum number of persons with first aid training, and the minimum level of first aid training of those persons;
c. the minimum volume of medical grade oxygen to be onsite;
d. transfer of an injured diver to the emergency services;
e. transfer of an injured diver to a recompression facility;
f. transfer of an injured diver to medical aid; and
g. lost or overdue diver/s.

(64) Where practicable, emergency plans should be attached to the work off-campus plan in UQSafe – Field.

Risk Assessment

(65) A risk assessment must be prepared by a person competent as a dive supervisor under this Procedure for all diving work in accordance with the Health and Safety Risk Assessment Procedure.

(66) In circumstances where the UQ Risk Management Database is not accessible to the entire dive team, alternative methodologies that comply with the How to Manage Work Health and Safety Risks Code of Practice 2021 may be utilised. These methodologies may be used to implement more effective controls in the event of variation in the previously identified hazards in supervisor approved assessment.

(67) The hazard identification checklist in the approved dive plan should be used to assist in identifying the potential hazards.

(68) The dive supervisor must ensure that:

a. all workers are consulted regarding the risk assessment prior to diving work commencing; and
b. all of the controls nominated in the risk assessment have been implemented.

Record of Dive

(69) A record of dives undertaken must be made on an approved form. The record must show for each diver:

a. the name of the diver;
b. the name of any co-diver (buddy or standby diver);

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c. the name of the dive supervisor supervising the dive;
d. the date and location of the dive;
e. the time the diver left surface;
f. the time the diver returned to surface;
g. the maximum depth the diver reached;
h. the information relevant to the dive tables in use (surface interval, repetitive factor, bottom time, effective bottom time, repetitive group); and
i. any incident, difficulty, discomfort or injury that occurred during the dive.

(70) Where nitrox is being used, the dive record must also show for each diver:

a. the fraction of oxygen in each gas being used; and
b. the maximum operating depth of each gas being used.

(71) The dive record must be completed and signed by the diver and dive supervisor as soon as practicable. Where diving is undertaken from a vessel, the dive record must be signed before the vessel departs the dive site.

Part D - Risk Management of Hazards Specific to Diving Work

Management of Risk of Decompression Sickness

(72) Risk of decompression sickness should be primarily managed by use of recognised decompression procedures that are at least as conservative as the Department of Civil and Environmental Medicine Air Decompression Procedures and Tables (1992).

(73) Where it is not practicable to apply a tabulated decompression table such as diving using closed circuit rebreathers, a diving computer may be used to track a diver's decompression requirement. The dive supervisor must ensure divers do not exceed 80% of the stated no-decompression limit for any dive as per clause 74.

Modifications of Dive Times Depending on Level of Recompression Chamber Support

(74) Depending on the availability of emergency recompression, diving must be limited as follows:

a. Dive duration limits where recompression is available within two hours:

   Where recompression is available within two hours of the dive site, the maximum bottom time for any single dive must be the no-decompression limit (NDL) times for the decompression tables and procedures in use, providing that the maximum time in the water for any one dive does not exceed the maximum dive time listed in Table 74.a for the appropriate depth.
b. Dive duration limits where recompression availability exceeds two hours:

   Where recompression availability exceeds two hours travel from the dive site, the maximum bottom time for any single dive must be 80% of the no-decompression limit (NDL) times for the decompression tables and procedures in use, provided that the maximum time in the water for any one dive does not exceed the maximum dive time listed in Table 74.b for the appropriate depth.

Maximum dive depth m	Maximum daily dive time (minutes)	
	One dive only	Multiple dives
6	480	360
9	240	190

Maximum dive depth m	Maximum daily dive time (minutes)	
	One dive only	Multiple dives
>9	150	120

Table 74.a – Maximum time limits for divers undertaken where recompression chamber support is available within 2 hours

Maximum dive depth m	Maximum daily dive time (minutes)	
	One dive only	Multiple dives
6	300	240
9	180	150
>9	120	90

Table 74.b - Maximum time limits for divers undertaken where recompression chamber support is available in more than 2 hours

Note: All repetitive dives undertaken without a recompression chamber onsite should be undertaken with an increased level of caution.

Exposure to Altitude Following Diving

(75) Exposure to altitude after diving has been shown to increase risk of decompression sickness. The minimum delays are set out in Table 75. These delays are for divers who find themselves in good health following diving. The times are based on minimal evidence and should be applied conservatively. If any signs or symptoms are present, individualised medical advice from a doctor trained in hyperbaric medicine must be obtained before any exposure to altitude.

Altitude (m)	Minimum delay before travel to altitude (h)		
	Category of dive (see below legend)		
	1	2	3
0-150	Nil	Nil	2
150-600	Nil	2	12
600-2400	12	24	48
Greater than 2400	24	48	72

Table 75 – Minimum delay before exposure to altitude

Category 1: A single dive to <50% of the DCIEM no-decompression limit, or two short dives within 18h with a total, combined bottom time of <50% of the no-decompression limit for the depth of the deeper dive. No decompression dives or repetitive dives to have been performed in the preceding few days.

Category 2: Dives exceeding category 1 but not included in Category 3, e.g. one or more dives to >50% of the no-decompression limits, or a single decompression dive in a day.

Category 3: Repetitive deep diving over multiple days, multiple decompression dives on one day, extreme exposures, omitted decompression, or other adverse events.

*Note that the altitude referred to is the effective altitude. In pressurized aircraft is usually 2400m, but may exceed this is some circumstances.

Management of Risk from Non-associated Vessel Traffic

(76) On navigable waters a dive flag in compliance with local regulation should be flown in a way to maximise visibility. In most waters, this is the international code of signals Code A flag.

(77) Where diving operations are conducted from vessels at night the vessel must display Restricted in ability to manoeuvre lights in accordance with Rule 27 of the International Regulations for Preventing Collisions at Sea 1972.

Management of Risk from the Breathing Apparatus

(78) Closed circuit rebreathers must not be used where it is reasonably practicable to obtain an equivalent outcome by substituting a lower risk type of breathing apparatus such as SSBA or SCUBA.

Management of Risk from Buoyant Lifting Devices

(79) Where objects are being moved by buoyant lifting devices, the objects buoyant weight must be limited to less than 50kg unless SSBA is being utilised and AS 2299.1 diving procedures are being followed.

Part E - Plant and Equipment Requirements

Compulsory Equipment for all Divers

(80) The following equipment must be used or carried by each diver on every dive unless special dispensation has been granted by their Boating and Diving Officer or delegate:

a. exposure protection (wetsuit, drysuit, coverall) appropriate to the prevailing environmental conditions;
b. mask, fins, and a diver's knife or cutting implement. The knife must be worn in such a way that it will not foul any discarded equipment (e.g. released weights);
c. a buoyancy control device (BCD) with oral and SCUBA-feed inflators. A BCD must be used with both wetsuits and drysuits;
d. a weight belt, or a buoyancy control device incorporating an integrated weight system with quick-release and weights (if required for buoyancy control).

(81) The following equipment must be onsite and available to the diver's attendant:

a. where divers are operating in free-swimming SCUBA or Rebreather mode, a means to recall the divers to the surface;
b. an adequate means of immediate communication in the event of an accident or emergency;
c. oxygen resuscitation equipment capable of delivering 100% oxygen to a minimum of two divers simultaneously.

(82) Consideration should be given as to the need for an automatic external defibrillator to be available to the dive attendant on site.

Scuba Mouth Held Demand

(83) A Scuba cylinder and valve designed in accordance with AS 2030.

(84) A Scuba regulator and alternative air source or air supply, such as a pony bottle or octopus regulator.

(85) An air cylinder pressure gauge, depth gauge and timing device, e.g. watch or dive computer.

(86) Emergency signalling equipment including:

a. a high visibility signalling device, for example, a safety sausage;
b. an audible signalling device, for example, a whistle;
c. a lighted signalling device, for example, a glow stick, if diving is to take place close to dusk or after dark.

Scuba Full Face Mask

(87) A Scuba cylinder and valve designed in accordance with AS 2030.

(88) A Scuba regulator including a full face mask and alternative second stage regulator.

(89) An air cylinder pressure gauge, depth gauge and timing device, e.g. watch or dive computer.

(90) Emergency signalling equipment including:

a. a high visibility signalling device, for example, a safety sausage;
b. an audible signalling device, for example, a whistle;
c. a lighted signalling device, for example, a glow stick, if diving is to take place close to dusk or after dark.

SSBA

(91) Either an incompressible helmet OR a full-face mask.

(92) An emergency gas supply of sufficient volume to make a safe ascent including any decompression required.

(93) A mechanism by which the diver can access the emergency gas supply without removing the helmet or full face mask.

(94) An air cylinder pressure gauge, depth gauge and timing device, e.g. watch or dive computer.

(95) A diver's hose complying with AS 2299.1.

(96) A harness.

(97) A lifeline.

(98) Two way voice communications to the surface.

(99) A gas control panel.

(100) A primary air source which may be compressed gas cylinders complying with AS 2030 or a low pressure breathing air compressor.

(101) A secondary gas source which must be sourced from compressed gas cylinders complying with AS 2030.

CCR

(102) A Closed Circuit Rebreather, which is both EN14143:2013 approved, and approved by the UQ Boating and Diving Officer.

(103) An air cylinder pressure gauge, depth gauge and timing device, e.g. watch or dive computer.

(104) A redundant open circuit gas supply.

(105) Emergency signalling equipment including:

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a. a high visibility signalling device, for example, a safety sausage;
b. an audible signalling device, for example, a whistle;
c. a lighted signalling device, for example, a glow stick, if diving is to take place close to dusk or after dark.

Tethered Diving

(106) In addition to the equipment listed above, divers may utilise lifelines in limited visibility.

a. A harness.
b. A lifeline which may incorporate communications, gas supply.

(107) Where practicable, a diver should carry an alternate gas supply such as a bailout cylinder.

(108) Emergency signalling devices need not be carried during tethered dives, unless there is a residual risk of current.

Maintenance Requirements

(109) Scuba, SSBA and CCR equipment including BCDs must be maintained as per the manufacturer's recommendations. Where the manufacturer's recommended service interval is greater than 12 months, the equipment must be inspected for correct function by a competent person every 12 months. A competent person in this case would be a person who has completed the manufacturer's service training or equivalent.

(110) Divers and dive supervisors are encouraged to plan ahead in order that equipment can be maintained in time however if, due to operational circumstances, maintenance can not be completed within the prescribed period then an extension of up to a maximum of 30 days can be issued if the dive supervisor operating the equipment confirms, in writing, that it is operating satisfactorily and appears in good condition. Where there is one or more qualified equipment technicians, whose duties include maintaining this equipment, then they should also all confirm the equipment is satisfactory before such an extension is issued.

Gauge Accuracy

(111) Diver's depth gauges and submersible contents gauges must be checked for accuracy at least every twelve months. Accuracy should be at least to the manufactured standard. Gauges experiencing rough or heavy use should be tested at more frequent intervals not exceeding 6 months.

Breathing Gas Quality and Testing

(112) The dive supervisor must ensure that the source of the breathing gas used has been tested against the below criteria within the last 3 months.

Air

(113) Breathing air must meet the following requirements:

a. have no objectionable or nauseous odour;
b. contain not less than 20% and not more than 22% by volume of oxygen;
c. contain not more than 5 ppm by volume of carbon monoxide;
d. contain not more than 600 ppm by volume of carbon dioxide;
e. contain not more than 0.5 mg of oil per cubic metre;
f. contain not more than 50mg of water vapour per cubic metre for cylinders filled to 225 bar; and
g. contain not more than 30 mg of water vapour per cubic metre for cylinders filled to 225-300 bar.

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Nitrox

(114) Nitrox used for diving operations must meet the following requirements:

a. have no objectionable or nauseous odour;
b. contain oxygen at a stated fraction >20% to within 1%;
c. contain not more than 5 ppm by volume of carbon monoxide;
d. contain not more than 600 ppm by volume of carbon dioxide;
e. contain not more than 0.5 mg of oil per cubic metre;
f. contain not more than 50mg of water vapour per cubic metre for cylinders filled to 225 bar; and
g. contain not more than 30 mg of water vapour per cubic metre for cylinders filled to 225-300 bar.

(115) Oxygen compatible breathing air must meet the following requirements:

a. have no objectionable or nauseous odour;
b. contain not less than 20% and not more than 22% by volume of oxygen;
c. contain not more than 5 ppm by volume of carbon monoxide;
d. contain not more than 600 ppm by volume of carbon dioxide;
e. contain not more than 0.1 mg of oil per cubic metre; and
f. contain not more than 30 mg of water vapour per cubic metre.

Section 4 - Roles, Responsibilities and Accountabilities

(116) Staff at all levels at The University of Queensland have specific responsibilities for ensuring occupational health and safety. Senior Officers, managers, and supervisors have duties under relevant legislation to exercise due diligence to ensure the health and safety of persons engaged in diving work.

(117) Persons conducting diving work have duties relating to workers under relevant legislation to take reasonable care for their own health and safety, and for the health and safety of other persons.

Senior Officers

(118) Senior Officers have the following additional responsibilities:

a. acquire and keep up-to-date knowledge of work health and safety matters in relation to diving work;
b. ensure adequate resources have been allocated for carrying out the work in accordance with approved WOC Plans and OHS Risk Assessment pertaining to diving work;
c. ensure appropriate processes are in place for receiving and considering information regarding incidents, hazards and risks and responding in a timely way to that information; and
d. ensure that appropriate approvals have been granted, and records maintained, relating to diving work.

Supervisors

(119) Supervisors have the following additional responsibilities:

a. ensure that diving operations are conducted according to this Procedure;
b. ensuring that workers are adequately trained, experienced, and inducted for diving work;

c. ensuring that diving operations are effectively supervised onsite by appointing an appropriate dive supervisor;
d. supervise the development of work off-campus plans including dive plans and OHS risk assessment for general diving work;
e. ensure dive plans and OHS risk assessments are relevant to the work being undertaken;
f. approve the work off-campus plans including dive plans and OHS Risk Assessment for general diving work;
g. ensure adequate information is provided to all stakeholders for review and emergency preparedness and response;
h. ensure that appropriate emergency procedures and equipment are in place for work off-campus;
i. ensure that work off-campus plans, dive plans and OHS risk assessment are updated if the nature of the work changes and new OHS risks are introduced or a work off-campus plan proves inappropriate;
j. ensure that plant and equipment including PPE and emergency equipment is provided and adequately maintained; and
k. ensure that timely reporting and appropriate corrective action is taken for all incidents involving diving work.

(120) Supervisors who are not dive supervisors should seek advice from the Health, Safety and Wellness Division Boating and Diving Advisor or a dive officer.

Workers

(121) Workers must:

a. ensure that they take reasonable care for their own and others' health and safety;
b. comply with this Procedure when participating in diving operations; and
c. co-operate with any reasonable request with regard to these diving procedures.

Dive Supervisors

(122) Dive supervisors are responsible for all aspects of diving safety whilst onsite. The dive supervisor nominated in a dive plan must be onsite during diving operations, or delegate their duties to another dive supervisor identified in the dive plan.

(123) In addition to the responsibilities under clause 121, the dive supervisor is responsible for:

a. ensuring a dive plan has been completed and approved by the supervisor and submitted to the relevant dive officer;
b. ensuring the relevant dive officer holds proof of competency and copies of current certificates of medical fitness for all divers;
c. ensuring the diving work is performed in accordance with the dive plan as far as is practicable, or notifying the supervisor and dive officer of any changes that may be required;
d. ensuring a risk assessment as per the Health and Safety Risk Assessment Procedure has been completed for the diving work;
e. ensuring the controls identified in the risk assessment are implemented;
f. briefing all persons involved in the diving operation, including the diver's attendants and tender master (as applicable), on their role;
g. ensuring all divers are fit to dive at the time diving commences;
h. ensuring the dive record is completed as soon as practicable for every dive;
i. submitting all dive records to the relevant dive officer within an acceptable timeframe (typically five working days from completion of the diving work);
j. monitoring decompression safety for each diver;

k. ensuring each diver has the equipment required and the diving equipment in use is maintained as per the manufacturer's standards;
l. ensuring equipment failures are noted in the dive record;
m. ensuring any illness, injury or near miss is reported to the University as soon as practicable as per the Health and Safety Incident and Hazard Reporting Procedure; and
n. ensuring breathing gas quality has been tested as per Breathing Gas Quality and Testing.

Divers

(124) Safe diving requires all participants in the diving team to be mindful of their safety and the safety of others in the team.

(125) Divers are responsible for:

a. providing to the University all and any records required for the University to comply with the Work Health and Safety Regulation 2011 (Qld) and any other relevant legislation (see Section 3 Part A above and Diving Safety Guideline Section 3 Part A);
b. ensuring they are fit to dive for each dive;
c. ensuring they are competent to undertake the dive and the diving work;
d. complying with control measures indicated in the risk assessment and in this Procedure;
e. giving their full attention to dive supervisor's brief;
f. monitoring gas supply and return to surface with an adequate reserve;
g. reporting equipment failures to dive supervisor;
h. signing the dive record;
i. maintaining a verified logbook of their diving activity; and
j. ensuring any illness, injury or near miss is reported to the University as soon as practicable.

(126) In addition, Limited Divers are responsible for:

a. ensuring the work undertaken is limited diving work; and
b. ensuring they dive on no more than 28 days in any six month period.

Dive Attendants

(127) Dive attendants are present onsite to assist the divers, monitor the safety of any diver, and provide support in emergencies. Dive attendants must not be engaged in any other activity while divers they are attending are underwater.

(128) Dive attendants are responsible for:

a. having a complete working knowledge of the dive plan, and associated tasks;
b. complying with control measures indicated in risk assessment and this Procedure;
c. giving their full attention to dive supervisor's brief;
d. promptly and accurately filling in the dive record as required;
e. assisting with the deployment and recovery of divers, samples and equipment as required;
f. establishing and maintaining a constant look-out over any divers in the water; and
g. participating in any emergency as per the emergency plan.

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Dive Tender Master

(129) The dive tender master is a key member of the dive team. Operations of the dive tender can have significant effects on divers working from or near the vessel.

(130) The dive tender master is responsible for:

a. ensuring the vessel is operated in a manner to minimise risk to any divers; and
b. ensuring the appropriate signals are shown by the vessel whilst engaged in diving operations.

(131) The dive tender master may suspend or recall diving operations at their discretion.

(132) See Boating Safety Procedure for further information.

Dive Officer

(133) A Dive Officer must be a suitably qualified and experienced occupational diver.

(134) The Dive Officer is responsible for:

a. providing advice for compliance and safety for diving operations;
b. assisting supervisors and dive supervisors to complete dive plans, emergency plans and risk assessments;
c. maintaining the University's required records for diving operations; and
d. auditing of compliance of the University's diving operations.

Section 5 - Monitoring, Review and Assurance

(135) As the first line of defence, senior officers will monitor and review operational activities, risks and controls associated with general diving work. Monitoring and reviews performed at this level will be facilitated by OHS staff and is generally embedded in the routine processes, procedures and activities of front line operating management.

(136) The Health, Safety and Wellness Division will monitor and review the compliance practices and health and safety management performance across the University to ensure the ongoing effectiveness of the related controls associated with general diving work.

(137) Where a work off-campus plan that includes a dive plan is in development prior to supervisor approval, the relevant diving officer should be invited to conduct a peer review of the dive plan and relevant risk assessments.

(138) Diving Officers must conduct regular desk top audits of dive records to ensure that records are complete and the diving work undertaken is within the scope of the approved dive plan.

Section 6 - Recording and Reporting

(139) Copies of certificates of fitness for diving work must be held by the University for at least ten years after the diving work is completed.

(140) Copies of competency must be held by the University for at least three years after the diving work is completed. The custodian of the certificates must be the relevant diving officer.

(141) Supervisors must ensure that dive plans are attached to work off-campus approvals in UQSafe – Field. Where practicable, emergency procedures should also be attached to the work off campus approval.

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(142) Dive records must be completed as soon as practicable by the dive supervisor and/or attendant, and submitted to the relevant diving officer within an acceptable timeframe (typically five working days from completion of the diving work).

(143) Divers should maintain as separate diver's logbook for their own records.

(144) Incidents must be noted on the dive record and full details reported as soon as practicable using UQSafe – Incident.

Section 7 - Appendix

Definitions, Terms, Acronyms

Term	Definition
CCR	Closed circuit rebreather.
Dive Officer	A person appointed in writing to perform the duties of a Dive Officer.
Dive Supervisor	The person competent for general diving work that is appointed in writing within the dive plan to ensure safety and compliance with the Work Health and Safety Act 2011 (Qld)
Dive tender	A vessel used to support diving operations.
Diving work	Work conducted in or under water or other liquid whilst breathing compressed gas.
General diving work	Work conducted in or under water or other liquid whilst breathing compressed gas that is not high risk diving work.
High risk diving work	Diving work that involves one or more of the following: • any work carried out in connection with the construction, alteration, conversion, fitting-out, commissioning, renovation, repair, maintenance, refurbishment, demolition, decommissioning or dismantling of a structure; • testing, maintenance or repair work of a minor nature carried out in connection with a structure; • inspection of a structure, or • the recovery or salvage of a large structure or large item of plant, • but excludes minor work that involves cleaning, inspecting, maintaining or searching for a vessel or mooring. Note: General diving work can be high risk without necessarily meeting the definition of high risk diving work.
Incidental diving work	Diving work that is not high risk diving work that: • is incidental to the conduct of the business or undertaking in which the diving work is carried out; and • involves limited diving; and • is carried out while being accompanied and supervised by a person who is competent for diving work.
Limited diving	Diving that does not involve any of the following: • diving to a depth below 30m; • the need for a decompression stop; • the use of mechanical lifting equipment or a buoyancy lifting device; • diving beneath anything that would require the diver to move sideways before being able to ascend; • the use of plant that is powered from the surface; • diving for more than 28 days during a period of 6 months.
Navigable waters	All waters that are from time to time capable of navigation and are open to or used by the public for navigation, whether on payment of a fee or otherwise.
PCBU	Person Conducting a Business or Undertaking.

Term	Definition
Scientific diving	Diving performed for the purpose of professional scientific research, natural resource management or scientific research as an educational activity.
Scuba	Open-circuit self-contained breathing apparatus.
SSBA	Surface supplied breathing apparatus.
Structure	Anything that is constructed, whether fixed or moveable, temporary or permanent and includes: • buildings, masts, towers, framework, pipelines, transport infrastructure and underground works (shafts or tunnels); and • any component of a structure; and • part of a structure. Note: Items of plant, such as minor experimental installations, are typically not structures.

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