Diving Safety Guideline

Section 1 - Purpose and Objectives

(1) This Guideline provides advice regarding The University of Queensland's requirements for general diving work as part of the Health, Safety and Wellness Policy. The purpose is to provide further information to Diving Safety Procedure.

(2) This Guideline applies to all workers participating in general diving work and to 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 Guideline are to:

a. provide information for duty holders where UQ is not the sole person in charge of a business or undertaking (PCBU);
b. provide further information regarding certificates of medical fitness and competency requirements;
c. provide further information regarding risk management for diving work;
d. give guidance as to acceptable timeframes for record keeping.

Section 2 - Diving Work where UQ is not the Sole PCBU

Diving Work from UQ Owned Vessels or Sites which Involve no UQ Personnel

(4) Prior to diving work commencing, UQ should ensure that the PCBU conducting the diving work is undertaking the work in compliance with their obligations under Part 4.8 of the Work Health and Safety Regulation 2011.

(5) UQ may demonstrate reasonable diligence by requesting a letter of authority to dive from the PCBU or an officer of the PCBU stating that:

a. the PCBU holds evidence that persons undertaking diving work are:
    i. medically fit according to the criteria of Paragraph M4 of AS 2299.1; and
    ii. competent to do the proposed work as per the requirements of the Work Health and Safety Regulation 2011;
b. a person competent to complete the diving work has been appointed as the dive supervisor;
c. a dive plan and risk assessment have been prepared for the diving work by a person competent for diving work; and
d. dive records will be lodged with the PCBU and retained for at least one year.

(6) Where the PCBU has a diving procedures manual, diving should be conducted as per the manual's procedures or guidelines.

(7) The PCBU and its workers shall comply with any reasonable request made by UQ in its capacity as the vessel owner.

Diving Work from UQ Owned Vessels or Sites where a UQ Worker is Acting as the Diver's Attendant and/or Dive Tender Master

(8) In addition to the requirements of clauses 4-7 above, UQ should ensure that:

a. the PCBU engages the diver's attendant or dive tender master in accordance with Diving Safety Procedure clauses 127-128 and 129-132 respectively; and
b. the divers and dive supervisor understand and are competent to perform their role in an emergency.

(9) The PCBU and its workers shall comply with any reasonable request made by UQ in its capacity as the vessel owner.

Diving Work with other PCBUs where UQ Workers are Acting as Divers

(10) Where a UQ worker is acting as a diver in a team of divers from another PCBU, the should ensure that:

a. a competent person has been appointed to supervise the diving work;
b. UQ workers undertaking diving work are competent to do so and have provided the relevant documentation as per Diving Safety Procedure section 3 part A;
c. the dive team consists of sufficient competent persons as per Diving Safety Procedure section 3 part B; and
d. dive plans, emergency plans, risk assessments and dive records are completed and submitted as per Diving Safety Procedure section 3 part C.

(11) Where UQ and non-UQ divers are working in the same vicinity in unrelated tasks, the supervisor should ensure that:

a. all dive teams' risk assessments consider the risk that each task might present to other persons;
b. the other PCBU provides sufficient information to comply with clauses 4-9 above (if relevant).

Section 3 - Key Requirements

Part A - Registration of Workers Undertaking Diving Work

Certificates of Medical Fitness

(12) Where it is not reasonably practicable for a diver to obtain a certificate of medical fitness as per the Diving Safety Procedure clauses 13-16, a diver may utilise a certificate of medical fitness for occupational diving if the certificate:

a. is no more than 1 year old;
b. was issued by a person with training in hyperbaric medicine and is registered to practice medicine in the country of issue;
c. the fitness criteria are provided and are equivalent to AS 2299.1 (2007) Appendix M4.

(13) Examples of certificates of medical fitness with equivalent medical criteria include a UK HSE occupational diving medical and a US NOAA diving medical.

Acceptable Evidence of Competency and Experience

Qualifications Under the Australian Qualifications Framework

(14) Australian Qualifications Framework statements of attainment for diving work should, as a minimum, meet the training requirements of AS 2815.6 (2013).

Certificates Equivalent to Recreational Diving Supervisor

(15) Where evidence of training equivalent to a recreational diving supervisor is used as the primary evidence of competency, and the dive task being undertaken is outside the scope of the training provided, a diver shall also provide evidence to the University that the diver is competent to undertake the work. This evidence may be provided in the form of logbooks, other qualifications, or evidence of other training.

Buoyant Lifting Devices

(16) Buoyant lifting devices regardless of size have the potential to create a rapid ascent for the diver operating them. shall ensure that the University holds evidence of competency through training for any diver using buoyant lifting devices. The training should be to the level of competency required by AS 2815.2.

Pneumatic Tools for Coring or Taking of Minor Samples

(17) Supervisors shall ensure that the University holds evidence of competency through training for any diver using tools powered other than by hand. The training should be to the level of competency required by the relevant section of AS 2815.2. Examples of such training include the ADAS Scientific Scuba to 30m undertaken at UQ from 2008-2016, ADAS Part 2, ADAS Occupational SSBA diver to 30m.

Other Tools Powered from Surface or by Compressed Air

(18) Supervisors shall ensure that the University holds evidence of competency through training for any diver using tools powered other than by hand. The training should be to the level of competency required by the relevant section of AS 2815.2.

Diver Propulsion Vehicles

(19) Supervisors shall ensure that the University holds evidence of competency for any diver utilising diver propulsion vehicles. This evidence may be in be form of formal training under a recreational training agency, or in-house training provided by a person competent to utilise the diver propulsion vehicle to be used.

Acceptable Evidence of Experience

(20) Where the diving procedures require evidence of diving experience to be held by the University, the evidence should take the form of a diver's or employer's record of dive, signed by the diving supervisor and stamped by the employer for verification. Where divers have not maintained a diver's logbook to this standard or cannot obtain employer's records of dives, a diver may make a statutory declaration verifying that dive records in any other form are a true and accurate record of their diving experience.

Conditions for Limited Scientific Scuba Divers

(21) Wherever practicable, divers using scuba should meet the minimum competency requirements of Diving Safety Procedure clause 17. Divers who do not meet this competency requirement may dive under the direct in-water supervision of a diver who is competent under Diving Safety Procedure clause 17 if they meet the requirements of Diving Safety Procedure clause 18.

(22) Supervisors must ensure that if limited scientific scuba divers are undertaking diving work, the dive task and

environmental factors must be low risk and be limited diving.

(23) Limited scientific scuba divers shall not participate in any dive using a tool other than one powered by hand, or dives utilising buoyant or mechanical lifting equipment.

(24) Volunteers who are engaged to make up a dive team should meet the minimum competency requirements of the Diving Safety Procedure clause 17.

Divers Without Currency of Dive Experience (Less than 10 Dives or 200 Minutes in last 2 years)

(25) Divers without recent diving experience should only engage in limited diving work until such time as sufficient time underwater has been logged.

Part B - Personnel Required

(26) Refer to the UQ Diving Safety Procedure section 3 part B.

Part C - Risk Management

Hyperbaric and Physiological Factors

Conservative Use of Decompression Tables for Dives with Increased Risk of DCS

(27) In the event that one or more significant identifiable risk factor/s are present before, during or after a dive (e.g. cold water, fatigue, hard work, post dive exercise, etc.), the dive supervisor must ensure that allowance is made for these and that if at all possible details of this are communicated to all divers BEFORE the dive.

(28) Such allowance shall be implemented by reducing the available time for the dive, with the amount of time reduction to be determined as follows:

a. where the dive is to deeper than 12 m - moving one or two time or depth increments, depending on the level of the risk factor/s, up the DCIEM tables; or
b. where the dive is to 12 m or less - moving one or two time or depth increments, depending on the level of the risk factor/s, across the Diving Safety Procedure Table 74.a and 74.b.

(29) For all dives of greater than 9 metres in depth, or between 7 m and 9 m in depth where a dive is for longer than 180 minutes duration, divers should perform a safety stop at between 3 to 5 metres depth for at least 3 to 5 minutes except where the conduct of a safety stop increases the risk from other hazards.

Recompression Chamber Support of Diving

(30) The requirements of this section have been adapted from Australian Standard AS2299.1:2015 – Occupational Diving Operations: Standard Operational Practice, which should be referred to for further information.

(31) Availability of Recompression Chamber Support:

a. Dive planning for dives must take account of the availability of emergency recompression chamber support. This may involve a chamber being on or remote to the site, and the chamber may or may not be dedicated to support of the diving work.
b. For on-site chambers and chambers dedicated for dive support, the specifications of the chamber, its staffing and operation, the treatment of decompression illness and the qualifications of its operators shall comply with the requirements in AS/NZS2299.1. Other chambers considered for dive support shall be multiplace, twin lock

chambers within medical facilities which have operational capability and availability to provide emergency diver treatment.

(32) Operations Requiring an On-site Recompression Chamber

An operational recompression chamber shall be located on-site for a diving work at any time when:

a. decompression diving is undertaken;
b. free or buoyant ascent training is being conducted;
c. any shallow diving work exceeds the depth/time limits given in Diving Safety Procedure clause 74;
d. no-decompression diving is undertaken to depths of greater than 30 m for bottom times in excess of the 80% of the no-decompression limits of the table in use;
e. the nature of any work being conducted results in a significant risk of extended bottom time, entrapment or uncontrolled ascent; and
f. where the nature of plant or equipment being used during the dive or on the dive site can be reasonably foreseen to result in a substantial increase in risk.

Dive Profiles

(33) Some types of dive profiles are associated with higher risks of decompression sickness than others. A dive profile which attains maximum depth early in the dive and gradually ascends to shallower depths is recommended. Dives that incorporate "rectangular", "reverse" or “saw tooth" profiles are known to expose divers to a higher risks of decompression sickness and should be avoided.

Ascent Rates

(34) The maximum ascent rate should be NO faster than 18 metres per minute with an optimal rate of 10 metres per minute or slower. Since the ascent is part of the decompression process, a faster-than-normal ascent (or emergency ascent) shall be reported to the dive supervisor as soon as possible.

(35) Time of delay in ascent should be added to bottom time when using ascent rates slower than the minimum ascent rate proscribed by the decompression table in use.

Multiple Ascents

(36) Multiple ascents should be avoided wherever practicable. Where multiple ascents are required, particular care should be made to ensure that divers do not exceed the decompression table’s ascent rate, and where practicable maintain an ascent rate of 10m per minute or less.

Multiday Repetitive Diving

(37) Divers performing successive multi-day repetitive dives must use a decompression schedule at least as conservative as the DCIEM dive tables for calculating their no decompression limits on each dive.

(38) Particular consideration should be given to fatigue management during multi-day repetitive diving programs. Dive supervisors should ensure all divers have adequate opportunity for rest and off-gassing.

Long Dive Times

(39) Excessive dive duration is a potent predisposing factor to decompression illness, particularly when coupled with multiple ascents and multi-day diving works. For this reason, all dive plans should keep the amount of time divers spend in the water on any given day to a minimum. Dive supervisors should plan all diving works with this aim in mind.

Free-diving in Conjunction with Compressed Gas Diving

(40) Free diving prior to compressed gas diving can add to a diver's gas load. Dive supervisors should consider the time spent underwater as bottom time.

(41) After any compressed gas dive, free diving should be avoided until the diver's repetitive factor has reduced to 1.0.

Other Risk Factors for DCS

(42) Dehydration
Dehydration is considered to be a major contributing factor to DCS. Divers should ensure they remain adequately hydrated throughout diving works. Dive supervisors should ensure that sufficient drinking water is available on the dive site.

(43) Exercise During and after Diving
Exercise during and after diving may contribute to an increased risk of DCS. Exercise rates that produce a sustained heart rate in excess of 160 bpm should be avoided during and after the dive. If exercise rates of this nature are unavoidable during the dive, the dive should be treated as hard work as per clauses 27-29.

(44) Alcohol and Intoxicating Drugs
Alcohol shall not be consumed within 12 hours prior to diving.

(45) Other Drugs and Medication
Divers should ensure that any drugs or medication being taken do not interfere with safe decompression, judgement or levels of consciousness. Advice should be sought from a diving doctor for any long term prescription medication being taken. Advice from a pharmacist should be sought as to the effects of any other medication being taken.

(46) Recent Illness
Divers should ensure that they are sufficiently recovered from any recent illness prior to undertaking diving work. Where doubt exists, advice should be sought from a physician with training in hyperbaric medicine.

(47) Lack of Recent Diving
Dive supervisors should ensure that dives undertaken to more than 80% of the no-decompression limits of the table in use should be preceded by a series of work up dives at shallower depths and shorter durations. Work up dives within the preceding few days have been shown to reduce decompression stress.

Cardiovascular Fitness of Diver and Ability to Swim

(48) Supervisors should ensure that divers for any proposed operation are competent swimmers and are sufficiently cardiovascularly fit to undertake the diving work. It should be noted that environmental factors such as sea state, current and water visibility, and task related factors such as high drag loads and emergencies can increase stress and discomfort in the water. A substantial number of diving fatalities occur due to cardiovascular disease and a lack of exercise tolerance.

(49) A simple swimming assessment shall be conducted for all divers as follows:

a. swim 200 metres nonstop without the use of swim aids, in less than 5 minutes; and
b. fin 800 metres in less than 18 minutes.

(50) If the is not satisfied by a simple swimming assessment, cardiovascular fitness to dive can be further demonstrated by the candidate diver scoring 14 or more points when completing the following 5 exercises.

EXERCISE 1: The candidate must swim underwater 200 metres/yards without stopping whilst using scuba equipment including suitable fins.
*If a candidate stops, the exercise is incomplete and must be repeated.

200 metres	
Time	**Points**
Under 2’15"	5
2’15 to 2’45”	4
2’45” to 3’20”	3
3’20” to 4’10”	2
Over 4’10”	1
stopped	incomplete

EXERCISE 2: The candidate must swim 400 metres/yards without stopping using no swimming aids and using any stroke or combination of strokes desired.
*If a candidate stops, the exercise is incomplete and must be repeated.

400 metres	
Time	**Points**
under 6 min, 30 sec	5
6 min, 30 sec to 8 min, 40 sec	4
8 min, 40 sec to 11 min	3
11 to 13 min	2
more than 13 min	1
stopped	incomplete

EXERCISE 3: 15 Minute Tread
Using no aids and wearing only a swimsuit, the candidate will stay afloat by treading water, drown proofing, bobbing or floating for 15 minutes, with hands (not arms) out of the water during the last 2 minutes. A candidate with a physical challenge that makes it difficult/impossible to hold hands out of the water is exempt from that portion of the exercise with no effect on the score.

Criteria	Points
Performed satisfactorily	5
Stayed afloat, but hands not out of water entire 2 minutes	3
Used side/bottom for momentary support no more than twice	1
Used side/bottom for support more than twice	incomplete

EXERCISE 4: 800 Metre Snorkel Swim
Using a mask, fins, snorkel and swimsuit only (no buoyancy control device (BCD) or flotation aids) and

swimming with the face in the water, the candidate must swim nonstop for 800 metres. The candidate may not use arms to swim, unless the candidate has a physical challenge that limits leg use and arm-swimming is the individual's normal swimming method while diving.
*If a candidate stops, the exercise is incomplete and must be repeated.

800 metres	
Time	**Points**
under 14 min	5
14 to 16 min, 30 sec	4
16 min, 30 sec to 18 min, 30 sec	3
18 min, 30 sec to 21 min	2
more than 21 min	1
stopped	incomplete

EXERCISE 5: 100 Metres Inert Diver Tow
Wearing full scuba equipment, the candidate must push or tow an inert diver in full scuba at the surface 100 metres nonstop without assistance. Note that this is a swimming power evaluation (speed-against-drag), not a rescue evaluation.
*If a candidate stops, the exercise is incomplete and must be repeated.

100 metres	
Time	**Points**
under 2 min, 10 sec	5
2 min, 10 sec to 3 min, 15 sec	4
3 min, 15 sec to 4 min, 20 sec	3
4 min, 20 sec to 5 min, 30 sec	2
more than 5 min, 30 sec	1
stopped	incomplete

Fatigue

(51) Supervisors and dive supervisors should ensure that diving and any other associated planned work activity provides sufficient rest periods so that workers engaged in these activities do not become affected by fatigue.

Noise

(52) Exposure to noise should be managed as per the Hearing Conservation Procedure and Hearing Conservation Guideline.

Thermal Stress

(53) Supervisors and dive supervisors should ensure that divers have adequate thermal protection for the water temperatures likely to be encountered. Thermal protection may include the provision of wetsuits, drysuits, hot water suits or other suitable thermal protection.

(54) Supervisors and dive supervisors should also consider adequate thermal protection for surface teams and divers while they are on the surface. This may include wet weather gear, suitable clothing or shade.

Oxygen Toxicity

(55) Dive supervisors should ensure that divers are not exposed to a partial pressure of oxygen exceeding 1.4 ata whilst in the water.

(56) Dive supervisors should ensure that the maximum partial pressure divers undertaking heavy work are exposed to does not exceed 1.2 ata whilst in the water.

(57) NOAA oxygen exposure limits for central nervous system oxygen toxicity (see below table) should not be exceeded. Decompression diving and dives undertaken with CCR may require additional controls to manage oxygen toxicity.

TABLE: NOAA Oxygen Exposure Limits		
PO2 (atm)	**Maximum Single Dive Limit (min)**	**Maximum Daily Limit (min)**
1.4	150	180
1.3	180	210
1.2	210	240
1.1	240	270
1.0	300	300
0.9	360	360
0.8	450	450
0.7	570	570
0.6	720	720

Gas Duration

(58) Dive supervisors shall ensure a system is implemented to ensure divers have adequate gas supplies. This may be monitoring of pressure gauges and returning to surface with an adequate margin of safety, or reserve gas supplies from an independent source such as a bailout or stage cylinder.

(59) Dive supervisors should estimate required gas volumes to be carried by the diver to ensure the diver can return to surface with an adequate margin of safety. Calculations can be made using the diver's likely depth, breathing rate and anticipated time of return.

Environmental Factors

Weather including Sea State and Strength and Direction of Wind

(60) Dive supervisors shall make an assessment of likely weather conditions prior to commencement of diving works. Diving should not proceed where sea state and direction and strength of the wind is likely to adversely affect diver safety and the emergency response capability. Dive supervisors should also consider that weather conditions can increase the additional time emergency response resources might take to reach the dive site.

(61) At times when strong winds are likely to be present at a site, diving should only be conducted where the site is situated in a sheltered location (e.g. on the lee side of an island or headland). At the time of departure for the site the dive supervisor must reassess conditions at the site, as well as the sea conditions that will need to be negotiated to reach the site and return from the site.

(62) Dive supervisors should consider the effects on safety of reduced surface visibility such as heavy rain or fog. The risks to be considered are the:

a. safety of surface personnel;
b. rescue of a diver who surfaces in an emergency;
c. safety of the surface vessel; and
d. effect on the emergency response and access to medical assistance.

(63) Diving without the use of lifelines and attendants should not be undertaken in conditions of restricted visibility, e.g. heavy rain, fog.

(64) Divers not utilising lifelines should tow a surface marker buoy in any sea state exceeding half the observation height of the observing surface attendant.

Current and Tide

(65) Diving in currents stronger than a diver can easily swim against is strongly discouraged. If permitted by the supervisor, all divers involved must be experienced in this type of diving and be tethered from the boat or use a surface float so that their location is always known. An experienced boat handler with knowledge of local conditions must be in charge of the vessel.

Biological and Chemical Contaminants

(66) Diving in contaminated water requires specific procedures and equipment to reduce the risk of exposure of the diver to the contaminant. Sites in proximity of sewerage and stormwater outfalls and pipelines, marinas, and enclosed bodies of water should be considered to be potentially contaminated and addition precautions such as water testing, SSBA helmets, dry suits or contaminated water suits be considered as appropriate to the concentration of the contaminant.

Remoteness of Dive Site

(67) Supervisors should ensure that emergency preparedness for diving works at remote sites are adequately resourced. This may require additional first aid training and personnel, medical personnel or support, first aid and medical equipment, communication equipment, transport, and or recompression facilities.

Time of Day

(68) Dives commencing within 30 minutes of sunrise or 60 minutes of sunset should be considered as night dives.

(69) Supervisors and dive supervisors considering diving works at night should consider the following risk mitigation:

a. the exit point should be appropriately lit for the ability of the divers to locate it and make a safe exit;
b. each diver must have at least 1 torch (preferably 2) and a cyalume stick or light which is visible in a 360° arc;
c. the vessel (if used) should display the appropriate signal for restricted in ability to manoeuvre.

(70) Night dives to depths of greater than 18 m must have compelling justification. For these dives, special control measures may need to be implemented.

(71) Working live or drift diving must not be carried out at night.

(72) Night diving should only be conducted in low risk conditions.

Depth at Worksite

(73) A safe work method statement or similar safe work process should be developed for any dive where the water depth at the site greatly exceeds the working depth. The safe work method statement should include the procedures for ensuring that divers' depths are monitored and safe working depths and durations are not exceeded.

Entrapment Hazards

(74) Substitution of SSBA for scuba should be considered for any dive where there is residual risk of entrapment of a diver.

Underwater Visibility

(75) Low visibility diving is deemed to exist when the visibility in a horizontal direction is less than one (1) metre. In low visibility conditions, all diving must be carried out in tethered mode. Consideration will be given to the experience of the dive team in these types of dives and to the additional control measures that are used. A reserve system other than a gauge indicating low pressure should be adopted wherever practicable or when visibility does not permit easily reading gauges.

(76) Diving in zero visibility conditions other than in training in controlled conditions should only be undertaken on SSBA.

Task Related Hazards

(77) Supervisors should ensure that risk assessments pertaining to diving work adequately address the hazards pertaining to the task being undertaken in addition to the hyperbaric, physiological, and environmental hazards.

Other Hazards

Dangerous Marine Animals

(78) Dive supervisors should consider the risk from all dangerous marine animals reasonably foreseeably encountered in their area of work. For example sharks, crocodiles, jellyfish, and leopard seals.

(79) Divers working with dangerous marine animals must indicate this on their 'Dive Plan' form. They must also document the most appropriate first aid procedures for injuries associated with such animals and provide said documentation to the relevant diving officer and any persons in their dive team. This is especially important for marine injuries requiring specialised treatment.

(80) Divers collecting or working with venomous marine animals should refer to the Working with Venoms and Toxins Guideline for guidance.

(81) Divers whose tasks may attract dangerous marine animals, or who are diving at sites frequented by them, should inform the relevant dive officer of this situation, and must have in place procedures and equipment to minimise risks to divers and to deal with any emergency that may occur. Risk is increased at dawn and dusk, in turbid low visibility waters and during prolonged periods in mid-water or at the surface.

(82) At sites where significant populations of high risk sharks exist, a detailed risk assessment shall be conducted, and hazard controls such as cages or electronic shark deterrent devices shall be implemented. Where shark deterrent devices are utilised, they shall be utilised in accordance with the manufacturer's instructions.

Shipping Movements

(83) Diving in shipping channels and ports should not be undertaken without direct consultation with the relevant harbour master, to ensure shipping movements do not endanger divers working on or in proximity to ships.

Water Inlets and Discharges

(84) Divers are vulnerable to suction or turbulence caused by water intakes and discharges as well as discharge products. If there are any intakes or discharges, suitable measures will need to be taken to ensure that these cannot operate while divers are in the water unless the divers are protected with a suitable physical guard. Such measures

will need to be part of a work control system such as a permit to work system, and could include mechanical isolation. The Boating and Diving Advisor should be consulted for further information.

Electrical Current

(85) Impressed current systems may be installed on subsea installations for prevention of corrosion by means of electrically supplied anodes. Dive supervisors carrying out diving works in the vicinity of an impressed current system should ensure that the risk from the system is assessed, and if necessary, the system shut down. The Boating and Diving Advisor should be consulted for further information.

Diver Propulsion Vehicles

(86) Supervisors shall ensure that the location of divers using diver propulsion vehicles can be adequately tracked by the surface attendants in the surface conditions likely to be experienced.

(87) Dive supervisors shall ensure that the surface attendants can remain in the vicinity of divers using diver propulsion vehicles. This may require diving from a vessel which is underway.

Diving from Vessels that are Underway

(88) Supervisors shall ensure that, when diving works are being undertaken from a vessel which is underway, risks from the vessel and its propellers are adequately controlled.

(89) For free swimming operations this may require additional surface personnel with a clear method of communication to the vessel master to monitor the position of the divers relative to the vessel. Guarding of propellers may be necessary if line of sight from the vessel control position to the divers or an adequate means of communication to the vessel control position from a person with line of sight to the divers cannot be maintained.

(90) Divers should utilise float lines when working from vessels that are underway.

(91) For tethered diving works this would typically require the guarding of propellers, or substitution of the propeller for a propulsion system that is unable to injure a diver.

Pneumatic Tool Use and Buoyant Lifting Devices

(92) Gas for pneumatic tools or lift bag inflation should not be drawn from a diver’s breathing supply.

(93) Buoyant lifting devices used shall be fit for purpose. Diver surface marker lift bags intended to support a diver during staged decompression should not be utilised as a buoyant lifting device for anything other than a diver and the diver’s breathing apparatus.

Closed Circuit Rebreathers (CCR)

(94) Risk management for diving would preclude the use of CCR as the breathing apparatus itself has been demonstrated to have a ten-fold increase in relative risk compared to twin manifolded cylinders for extended duration dives.

(95) Supervisors of diving works utilising closed circuit rebreathers must adequately demonstrate that the work is not reasonably practicable to undertake using open circuit scuba or SSBA. An example of work that is not reasonably practicable using open circuit or SSBA would be close behavioural observations of animals which respond to the noise of the breathing apparatus.

Section 4 - Roles, Responsibilities and Accountabilities

(96) Refer to the UQ Diving Safety Procedure section 4.

Section 5 - Monitoring, Review and Assurance

(97) Refer to the UQ Diving Safety Procedure section 5.

Section 6 - Record Keeping

(98) Dive supervisors should ensure that divers' records of competency and currency, dive plans, risk assessments and emergency plans have been received by the Boating and Diving Officer at least five (5) working days prior to commencement of work.

(99) Dive records should be submitted to the Boating and Diving Officer as soon as practicable after completion of the dive trip. A period of five (5) working days would be considered reasonably practicable.

Section 7 - Appendix

Definitions, Terms, Acronyms

Term	Definition
CCR	Closed circuit rebreather.
DCS	Decompression sickness.
Dive Supervisor	The person competent for general diving work that is appointed in writing to ensure safety and compliance with the Work Health and Safety Act 2011.
Dive tender	A vessel used to support diving works.
Diving Safety Procedure	The University of Queensland Diving Safety Procedure.
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.
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.

Term	Definition
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.
PCBU	Person Conducting a Business or Undertaking.
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.

Status and Details

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