



Australian Government

Department of Education, Employment and Workplace Relations

SISOSCB521A Demonstrate technical diving

Release: 2

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Modification History

Not Applicable

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to plan and perform technical dives. This includes making no stop dives and extended no stop dives using air and enriched air to a maximum depth of 40m.

Application of the Unit

This unit applies to current or aspiring technical dive guides or instructors working in open water dive environments to a maximum depth of 40 metres. This may include those working for private dive schools or companies operating at coastal sites or through holiday resorts.

Licensing/Regulatory Information

No licensing, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

SISOSCB301A SCUBA dive in open water to a maximum depth of 18 metres

SISOSCB303A Complete deep dives to between 18 and 40 metres

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements and Performance Criteria

ELEMENT

PERFORMANCE CRITERIA

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

1. Plan for a technical dive.

- 1.1. Prepare ***technical diving plan*** and ensure physiological and psychological well being according to industry standards, ***industry technical and safety criteria, relevant legislation and organisational policies and procedures.***
- 1.2. Access information on the dive site and identify potential ***hazards*** associated with the technical dive and implement procedures to minimise ***risks.***
- 1.3. Access ***relevant sources*** to interpret detailed ***weather and environmental information*** and account for environmental variables when developing dive plan.
- 1.4. Develop accident management strategies to address potential emergencies and technical diving risks according to industry technical and safety criteria.
- 1.5. Develop an appropriate ***gas plan*** according to industry technical and safety criteria.
- 1.6. Select, inspect and assemble ***equipment*** and technical diving rig.

2. Perform technical dive.

- 2.1. Demonstrate technical diving techniques and procedures.
- 2.2. Respond efficiently to emergencies and negotiate technical dive hazards and risks according to dive plan and industry technical and safety criteria.
- 2.3. Demonstrate safe ascent rate according to no decompression limits.

3. Complete post-technical dive responsibilities.

- 3.1. Inspect, wash and store equipment according to organisational policies and procedures.
- 3.2. Complete dive log before and after the technical dive according to industry technical and safety criteria and organisational policies and procedures.
- 3.3. Evaluate ***relevant aspects*** of the technical dive and

ELEMENT**PERFORMANCE CRITERIA**

identify potential areas of improvement for future technical dives.

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- planning and organising skills to develop technical diving and gas plans according to the scope of the dive and to select appropriate technical diving equipment
- self management and observation skills to:
 - inspect technical diving equipment and rig
 - monitor health and well being throughout dive
 - evaluate relevant aspects of technical dive
- problem-solving skills to:
 - calculate gas mixtures and develop a suitable gas plan
 - negotiate hazards and risks
 - navigate underwater and adapt to changing conditions
- numeracy skills to calculate gas mix and consumption
- literacy skills to complete dive logs
- first aid and emergency response skills appropriate to the site to enable initial response to emergencies and personal health care.

Required knowledge

- legislation, organisational policies and procedures, industry standards and industry technical and safety criteria to enable safe conduct of technical diving
- equipment types, characteristics and technology used for technical diving, the advantages and disadvantages of the range of equipment and factors affecting appropriate selection
- principles of mixing gas, the different types of gas and its application in technical diving
- technical diving hazards, risks and emergencies to plan and prepare response strategies
- underwater navigation techniques at depths of up to 40m
- no decompression limits for technical diving
- weather and environmental information to interpret forecast conditions and their effect on the technical diving activity
- minimal impact interactions and techniques to minimise negative impact on aquatic animal and plant life
- emergency, first aid and rescue procedures appropriate to the location to ensure risk minimisation to self and group.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence of the following is essential:

- applies relevant process to select, inspect and fit technical diving equipment, including a basic rig
- calculates gas mixtures and no decompression limits according to industry technical and safety criteria, relevant legislation and organisational policies and procedures
- identifies potential hazards, risks and emergency situations commonly associated with technical diving and implements appropriate risk management procedures according to industry technical and safety criteria
- evaluates and reflects on technical diving performance to identify strengths, weaknesses and areas that need improvement.

Context of and specific resources for assessment

Assessment must ensure participation of technical diving activities that are of a sufficient duration to allow the participant to demonstrate competency and consistency of performance

Assessment must also ensure access to:

- resources and information to plan and select appropriate equipment for the technical diving activity
- an open water site suitable for technical diving
- a suitable diving boat, if required
- technical diving, navigation, communication, safety, rescue and first aid equipment.

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- observation of the planning and review process with evidence of reference to resources
- oral or written questioning to assess knowledge of technical diving techniques, procedures, hazards and risks
- observation of safe participation and handling of

equipment throughout technical diving process

- third-party reports from a supervisor detailing performance.

Industry has determined that this unit must be assessed with the following unit or units:

- SISOSCB317A Complete a dive using Enriched Air Nitrox.

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Technical diving plan may include:

- objectives
- date, time and duration of dive
- site, diving rig and equipment
- safety and emergency procedures.

Industry technical and safety criteria may include:

- British Sub-Aqua Club (BSAC)
- Professional Association of Diving Instructors (PADI)
- SCUBA Schools International (SSI).

Relevant legislation may include:

- occupational health and safety
- permits or permission for access
- environmental regulations
- marine regulations.

Organisational policies and procedures may include:

- occupational health and safety
- communication protocols
- code of ethics.

Hazards may include:

- temperature extremes
- lack of immediate access to the surface
- hypoxia or hyperoxia
- narcosis
- decompression illness (DCI)
- errors and omitted procedures
- drowning, due to failed buoyancy control device (BCD) and backup, or water entry with closed cylinder valves.

Risks may include:

- hypothermia
- heat exhaustion
- injuries
- lost party or party member
- equipment failure
- no gas
- regulator free flow
- Buoyancy Control Device (BCD) failure
- oxygen toxicity
- dive computer failure or lost slate and or dive

tables

- hypoxia
- hyperoxia
- pulmonary toxicity
- carbon dioxide
- central nervous toxicity
- toxicity in dive partner
- lost bottom gas
- catastrophic gas loss.

Relevant sources may include:

- Bureau of Meteorology
- media
- land managers or agencies
- coastal patrol or coastguard
- volunteer marine rescue
- local knowledge.

Weather and environmental information may include:

- satellite images
- daily and weekly forecasts
- maximum and minimum temperatures
- weather warnings
- event warnings
- river levels
- synoptic charts
- high and low tide predictions.

Gas plan may include:

- equivalent air depth (EAD)
- maximum blend depth
- gas consumption
- actual and reserve gas supply
- calculate best mix for any depth
- residual oxygen percentage for repetitive diving
- oxygen dose
- decompression on oxygen
- air and enriched air of up to 60 per cent oxygen.

Equipment may include:

- exposure suits
- mask
- fins
- weight systems
- buoyancy control device (BCD) and harness
- multigas computers
- gas related equipment
- accessories

Relevant aspects may include:

- navigation equipment
- communication equipment.
- objectives
- planning process
- activity site
- weather
- equipment selection
- clothing selection
- food selection
- instructional content
- instructional technique
- assessment technique
- group feedback
- directing techniques
- rescue techniques employed
- development of technical diving and gas plans
- technical diving techniques and procedures
- rescues and emergency procedures.

Unit Sector(s)

Outdoor Recreation

Competency Field

SCUBA