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**DIVING - OCCUPATIONAL**  
**Use power tools, cutting and welding**  
**equipment, and lifting equipment to**  
**complete underwater work**

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<b>level:</b>	<b>4</b>
<b>credit:</b>	<b>8</b>
<b>planned review date:</b>	June 2002
<b>sub-field:</b>	Diving
<b>purpose:</b>	People credited with this unit standard are able to use underwater power tools, inspect and maintain underwater non-hydraulic power tools, use a water jet and airlift, use thermal cutting methods, and demonstrate knowledge of underwater arc welding operations, and maintain equipment.
<b>entry information:</b>	Prerequisites: Unit 6401, <i>Provide first aid</i> and Unit 6402, <i>Provide resuscitation level 2</i> , or demonstrate equivalent skills and knowledge; and hold a current Medical Clearance to dive and occupational-specific certificate of competence.
<b>accreditation option:</b>	Evaluation of documentation and visit by NZQA and industry.
<b>moderation option:</b>	A centrally established and directed national moderation system has been set up by the Dive Industry Training Organisation.
<b>special notes:</b>	1 Hydraulic tools are sealed and need little maintenance.

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- 2 Industry criteria refer to diving practice complying with the requirements of the Health and Safety in Employment Act 1992 and subsequent regulations relating to Occupational Diving; and comply with the theory and practice requirements of the British Health and Safety Executive (HSE) 1990 to ensure the international standard is maintained. All practice also complies with Accident Rehabilitation & Compensation Insurance Corporation and Occupational Safety and Health (OSH) guidelines.

## **Elements and Performance Criteria**

### **element 1**

Use underwater power tools.

### **performance criteria**

- 1.1 Power tool use is described, including effect of depth and power sources, and meets industry criteria.
- 1.2 Nuts are tightened and undone using an impact wrench.
- 1.3 Steel and concrete are cut using a disc-cutter.
- 1.4 A hole is drilled at a pre-determined position in a steel plate.
- 1.5 Concrete is broken using a jack hammer.

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1.6 Power tool usage complies with manufacturer's operating procedures.

**element 2**

Inspect and maintain underwater non-hydraulic power tools.

**performance criteria**

- 2.1 Cutting and/or grinding discs are maintained in compliance with manufacturer's specifications.
- 2.2 Grinding and cut-off discs are stored in accordance with manufacturer's specifications.
- 2.3 Tools are maintained after immersion in salt water.  
Range: wash in fresh water, dry with air hose, lubricate, flush out tools.
- 2.4 Damage to hoses is identified and maintenance is carried out to industry criteria.  
Range: clean and lubricate quick release fittings, change seals.
- 2.5 Filters are changed to manufacturer's specifications and industry criteria.
- 2.6 Automatic lubrication device is topped up and/or pneumatic tool is lubricated to manufacturer's specifications.

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**element 3**

Use a water jet and air lift.

**performance criteria**

- 3.1 Silt and/or mud are cleared from an object on the sea bed using a water jet to industry criteria.
- 3.2 Silt and/or mud are cleared using an airlift.
- 3.3 Water jet and air lift are used to maximum permissible working depth.
- 3.4 Air lift blockage clearance meets industry criteria.

**element 4**

Use and maintain thermal and oxy-arc equipment and methods.

**performance criteria**

- 4.1 Description of thermal cutting principles covers thermal and oxy-arc cutting torches and meets industry criteria.
- 4.2 Ferrous metals and concrete (up to 25mm thick) are cut underwater, using thermal arc cutting torch and oxy-arc cutting torch, to industry criteria.
- 4.3 The dangers of trapped gas pockets are identified, and precautions described to industry criteria.

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4.4 Oxy-arc cutting torch is maintained to manufacturer's specifications.

**element 5**

Demonstrate knowledge of underwater arc welding operations.

**performance criteria**

5.1 Description of underwater arc welding meets industry criteria.

Range: principles of equipment operation.

5.2 Safety precautions for underwater arc welding operations are identified to industry criteria.

Range: protective equipment, avoid coming between work piece and earth clamp, break welding current before charging electrodes.

**Comments to:**

Dive Industry Training Organisation  
Unit Standard Revision  
PO Box 160  
WELLINGTON

*by June 2002.*

**Please Note:** Providers must be accredited by the Qualifications Authority before they can offer programmes of education and training assessed against unit standards.

Accredited providers assessing against unit standards must engage with the moderation system that applies to those unit standards. [Please refer to relevant Plan ref: 0180]