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| <b>Title</b> | <b>Demonstrate knowledge of and apply techniques for blasting for pipeline perforations</b> |                |           |
| <b>Level</b> | <b>4</b>  | <b>Credits</b> | <b>10</b> |

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| <b>Purpose</b> | People credited with this unit standard are able to: demonstrate knowledge of blasting for pipeline perforations; design blasting layouts and prepare for pipeline perforations; contain site prior to blasting; test, charge, and initiate blast; and carry out post-blast procedures. |
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| <b>Classification</b> | Extractive Industries > Surface Extraction |
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| <b>Available grade</b> | Achieved |
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| <b>Prerequisites</b> | Unit 21152, <i>Demonstrate and apply knowledge of storing explosives for use</i> , and Unit 17694, <i>Demonstrate knowledge of explosives and their properties</i> ; or demonstrate equivalent knowledge and skills. |
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## Guidance Information

- Performance of the outcomes of this unit standard must comply with the following:
  - Health and Safety at Work Act 2015 (HSW);
  - Health and Safety at Work (General Risk and Workplace Management) Regulations 2016;
  - Health and Safety at Work (Worker Engagement, Participation, and Representation) Regulations 2016;
  - Health and Safety at Work (Hazardous Substances) Regulations 2017 and related Safe Work Instruments (SWIs) published by WorkSafe NZ;
  - approved codes of practice issued pursuant to the HSW Act;
  - WorkSafe New Zealand Act 2013;
  - Hazardous Substances and New Organisms (HSNO) Act 1996;
  - AS 2187.1:1998 *Explosives – Storage, transport and use – Storage*;
  - NZS 4403:1976 *Code of practice for the storage, handling and use of explosives (Explosives Code)*;
  - Territorial and/or Local Authority plans and bylaws for the storing of explosives;
  - Occupational health and safety guidelines, available at <https://worksafe.govt.nz/>.
- The Environmental Protection Authority (EPA) is responsible for assessing and approving hazardous substances and, where appropriate, setting controls on the way the substances are used. Any questions relating to the provisions for hazardous substances should be directed to [EPA New Zealand](#).

- 3 Any new, amended or replacement Acts, regulations, standards, codes of practice, guidelines, or authority requirements or conditions affecting this unit standard will take precedence for assessment purposes, pending review of this unit standard.
- 4 **Definitions**  
*Industry best practice* refers to those practices which competent practitioners within the industry recognise as current industry best practice. These may be documented in management plans, company procedures, managers' rules, occupational health and safety policy, industry guidelines, codes of practice, manufacturers' instructions, and safe working and/or job procedures (or equivalent).  
*Company procedures* and *site requirements* mean the documented methods for performing work activities and include health and safety, operational, environmental, and quality management requirements. They may refer to manuals, codes of practice, or policy statements.
- 5 This unit standard is intended for, but is not limited to, workplace assessment.

## Outcomes and performance criteria

### Outcome 1

Demonstrate knowledge of blasting for pipeline perforations.

#### Performance criteria

- 1.1 The physical requirements of the site are described in relation to the blast required.
- Range environmental effects and conditions, static current, confined spaces, heat radiation.
- 1.2 The explosives and their initiation systems are described in terms of their capabilities.
- 1.3 Specific techniques for use on pipelines are described in terms of different tasks.
- Range perforating, cutting, shearing.

### Outcome 2

Design blasting layouts and prepare for pipeline perforations.

#### Performance criteria

- 2.1 Site plans are analysed in terms of meeting the client's requirements.
- Range site strata, underground services, overhead services, adjacent properties, resource consent, notification to statutory bodies.
- 2.2 The layout of explosives and blasting pattern is designed and recorded on blast plan in accordance with the site requirements and technical data.

- 2.3 Explosives are selected in accordance with blast plan.
- Range primers, blasting products.
- 2.4 Initiation systems are selected with consideration for the environmental constraints.
- Range environmental constraints may include but are not limited to – electrical, gas, adjacent properties, radio frequencies, mobile telephones, static electricity, moisture, isolation procedures.
- 2.5 Drillers, where required, are instructed as to pattern, number, depth, and angles of holes, in accordance with the blast plan.
- 2.6 Personal protective equipment is worn in accordance with legislative requirements and company procedures.

### **Outcome 3**

Contain site prior to blasting.

#### **Performance criteria**

- 3.1 Exclusion zone is established in terms of the size and extent of the proposed blast.
- 3.2 Signage is clearly displayed in accordance with industry best practice and legislative requirements.
- 3.3 Physical controls required are in place in accordance with industry best practice and legislative requirements.
- 3.4 Audible and visible warnings are set off in accordance with situation and industry best practice and legislative requirements.

### **Outcome 4**

Test, charge, and initiate blast.

#### **Performance criteria**

- 4.1 Electrical and electronic detonators, where used, are tested in accordance with industry best practice.
- 4.2 Check is made for drilling accuracy before charging the blast-holes in accordance with industry best practice.
- 4.3 Charge is primed and loaded in accordance with the blast plan.
- 4.4 Suitable stemming and physical containment, where required, is placed in accordance with the blast plan.

4.5 Blast initiation procedures are carried out in accordance with the blast plan.

Range may include but is not limited to – circuit test for electrical initiation, resistance test using a blasting galvanometer, electrical connection using an approved exploder, non-electrical initiation, safety fuses and plain detonator, electrical initiation, final warning, blast initiation.

## Outcome 5

Carry out post-blast procedures.

### Performance criteria

- 5.1 All charges are checked to ensure that complete firing has occurred in accordance with the blast plan.
- 5.2 Any identified misfires are reported, and recorded, and company procedures for isolation, recovery, and disposal are initiated in accordance with industry best practice.
- 5.3 Signage is removed and all clear signal is given in accordance with the blast plan.

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| <b>Replacement information</b> | This unit standard, unit standard 21630, unit standard 21631, and unit standard 21633 replaced unit standard 17698. |
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| <b>Planned review date</b> | 31 December 2022 |
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### Status information and last date for assessment for superseded versions

| Process               | Version | Date             | Last Date for Assessment |
|-----------------------|---------|------------------|--------------------------|
| Registration          | 1       | 24 November 2005 | 31 December 2017         |
| Review                | 2       | 18 March 2011    | 31 December 2017         |
| Reinstatement         | 3       | 17 October 2013  | 31 December 2017         |
| Review                | 4       | 22 August 2014   | N/A                      |
| Rollover and Revision | 5       | 25 January 2018  | N/A                      |

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| <b>Consent and Moderation Requirements (CMR) reference</b> | 0114 |
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

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**Comments on this unit standard**

Please contact MITO New Zealand Incorporated [info@mito.org.nz](mailto:info@mito.org.nz) if you wish to suggest changes to the content of this unit standard.