

Title	Design blasting layouts within surface operation production areas		
Level	4	Credits	20

Purpose	People credited with this unit standard are, for a given shot, able to: determine factors influencing blasting layout design; determine blast design; and design shot loading and firing, within surface operation production areas.
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Classification	Extractive Industries > Surface Extraction
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Available grade	Achieved
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Guidance Information

- 1 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 (Mining Operations and Quarrying Operations) 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;
 - Occupational health and safety guidelines, available at <https://worksafe.govt.nz/>.
- 2 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.
- 3 Definitions
 - Company policy* and *company procedures* 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.
 - 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 or requirements, managers' rules, occupational health and safety policy, industry guidelines, codes of practice, manufacturers' instructions, and safe working and/or job procedures (or equivalent).
- 4 This unit standard is intended for, but is not limited to, workplace assessment.

Outcomes and performance criteria

Outcome 1

Determine factors influencing blasting layout design for a given shot, within surface operation production areas.

Performance criteria

- 1.1 Customer's product requirements are determined and documented in accordance with company procedures, legislation, and industry best practice and/or codes of practice.
- Range product type, product size, product quantity.
- 1.2 Factors involved in producing material to customer's product requirements are determined and documented in accordance with company procedures, legislation, industry best practice, and/or codes of practice.
- Range face height, drill type available, muck pile to suit machine, hole size, burdens and spacing, sub-grade, operations restrictions, initiation method, angle or vertical holes, hole depth.
- 1.3 Safety requirements for transportation, storage, and control of explosives are determined and documented in accordance with company policy, legislation, industry best practice, and/or codes of practice.

Outcome 2

Determine blast design for a given shot, within surface operation production areas.

Performance criteria

- 2.1 Blast area, and type of initiators to be used are determined in accordance with job requirements, site location, company policy, industry best practice, and/or codes of practice.
- 2.2 Blast design is determined in accordance with site requirements and safety considerations, company policy, industry best practice and/or codes of practice.
- 2.3 Locations of charge holes are set and documented in the blast plan in accordance with the blast design requirements, company policy, industry best practice, and/or codes of practice.
- 2.4 Safety requirements are identified in accordance with the site situation environment, company policy, industry best practice and/or codes of practice.
- 2.5 Explosives and amount of charge are selected in accordance with job requirements, blast design specifications, company policy, industry best practice, and/or codes of practice.

Outcome 3

Design shot loading and firing for a given shot, within surface operation production areas.

Performance criteria

- 3.1 Position of charge holes, set out, and drilling is consistent with contract requirements and the blast plan and is in accordance with company policy, industry best practice, and/or codes of practice.
- Range blasthole diameter, blasthole pattern, blasthole depth, spacing, charge distribution, stemming and/or covering of charges.
- 3.2 Shot loading is designed in accordance with customer's requirements, drillers' comments, HNSO Act 1996, and HSW (Hazardous Substances) Regulations 2017.
- Range explosive type, wet or dry holes, powder factors, detonators.
- 3.3 Shotfiring sequence is consistent with the site blast plan and contract requirements and is in accordance with company policy, industry best practice, and/or codes of practice.
- Range includes – initiation sequence, sequence design, size of blast; may include – delays, inspection of wiring.
- 3.4 Documentation of design is completed in accordance with company policy, industry best practice, and/or codes of practice.
- 3.5 Safety plan for shot loading and firing is determined in accordance with the blast plan, company policy, and industry best practice and/or codes of practice.

Planned review date	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	26 November 1996	31 December 2012
Revision	2	17 December 1996	31 December 2012
Revision	3	18 December 1998	31 December 2012
Review	4	19 April 2002	31 December 2012
Review	5	27 January 2005	31 December 2012
Review	6	18 March 2011	31 December 2017
Review	7	22 August 2014	N/A
Rollover and Revision	8	25 January 2018	N/A

Consent and Moderation Requirements (CMR) reference

0114

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

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