Title	**Demonstrate knowledge of ~~the~~ geology and geotechnical features and failures ~~characteristics of~~ for surface extraction**		
Level	**4**	**Credits**	**5**

Purpose	People credited with this unit standard are able to demonstrate knowledge of geology and geotechnical features and failures for surface extraction~~the geological structure of a deposit, and demonstrate knowledge of the effects that geological features have on surface extraction methods~~.

Classification	Extractive Industries > Surface Extraction

Available grade	Achieved

~~Explanatory notes~~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 (Mining Operations and Quarrying Operations) Regulations 2016;
Health and Safety at Work (Worker Engagement, Participation, and Representation) Regulations 2016;
approved codes of practice issued pursuant to the HSW Act.

~~Health and Safety in Employment Act 1992 (HSE);~~
~~Health and Safety in Employment Regulations 1995;~~
~~Health and Safety in Employment (Mining Operations and Quarrying Operations) Regulations 2013;~~
~~approved codes of practice issued pursuant to the HSE Act.~~

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 procedures mean the documented methods for performing work activities and include health and safety, operational, environmental, and quality management requirements. They may refer to legislation, regulations, guidelines, standard operating procedures, manuals, codes of practice, or policy statements.

Industry best practice may be documented in management plans, control 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).

Outcomes and evidence requirementsperformance criteria

Outcome 1

Demonstrate knowledge of geology and geotechnical features and failures for surface extraction.
Demonstrate knowledge of the geological structure of a deposit.

Evidence requirementsPerformance criteria

1.1 The geological structure of an extractive site is described in relation to the development of an extraction plan.

Range may include but is not limited to – overburden removal, waste disposal, stockpiling.

1.2 The excavation equipment selected is described in relation to the material to be extracted.

1.31 Rocks and minerals from a selected site are identified and described in terms of their formation and characteristics, and their quality is described in relation to their potential for commercial use.

Range rock types – igneous, metamorphic, sedimentary.

Outcome 2

Demonstrate knowledge of the effects that geological features have on surface extraction methods.

Evidence requirements

2.11.2 Geological and geotechnical features occurring within the extractive sites plan are identified in relation to industry best practice methods of working towards, with, and around them.

Range may include but is not limited to – faults, folding, anticline, syncline, monocline, dyke, sill, washout, partings, seam type, dip, overlying rock, orebody.

2.21.3 Geological and geotechnical features occurring within extractive sites are described in terms of safety management plans. A site work plan is developed from a geological map in accordance with industry best practice. The work plan covers the extraction of materials or minerals with economic value.

Range includes – failure modes, monitoring, recording and reporting, slope stability, face stability, waste dump stability;
site plan may include but is not limited to – contours, overburden removal, interburden, haulage roads, working surfaces, seam thickness, seam or orebody characteristics, grade, strike and dip, waste dump, rehabilitation, . slope stability.

2.31.4 The industrial rock and mineral resource estimate and extractable volume at an extractive site is determined in relation to an annual extraction programmeMethods for managing geological and geotechnical failures are described in terms of industry best practice.

Range may include but is not limited to – risk assessment, overburden removal, waste rock disposal, run of mine material, processed product, product end-use, product lossesexternal geotechnical advice, ground support, isolation, monitoring, recording and reporting..

Planned review date	31 December 20192022

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	25 July 1999	31 December 2017
Review	2	27 January 2005	31 December 2017
Rollover and Revision	3	16 July 2010	31 December 2017
Review	4	18 June 2015	N/A31 December 2019
Review	5		N/A

Consent and Moderation Requirements (CMR) reference	0114

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

Please note

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

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.
~~Please contact the NZ Motor Industry Training Organisation (Incorporated) (MITO) info@mito.org.nz if you wish to suggest changes to the content of this unit standard.~~