

## Certificates of Competence for Quarries August 2017.

### Introduction

In response to WorkSafe's consultation document "Proposed requirements for granting Extractives Certificates of Competence" dated June 2017, MinEx proposes to present a submission in two main parts.

This would:

- firstly, outline Minex's ideal regime for CoCs and qualifications (which would require amendment to regulations and the development of revised qualifications), and
- secondly, provide feedback on WorkSafe's immediate proposals (within the current regulatory framework).

In general the current CoC requirements, and those proposed within WorkSafe's Proposed Requirements for Granting Extractive Certificates of Competence (June 2017) do not address the skills, knowledge and experience required for the safety critical roles defined in Part 2 of the Health and Safety at Work (Mining Operations and Quarrying Operations) Regulations 2016. This is reflected in feedback from Extractives industry stakeholders and the unacceptable failure rate of those applicants sitting their oral exam.


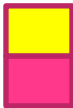
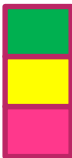
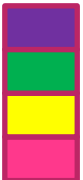
We propose that the current unit standard driven CoC should be replaced with a Qualification model of NZQA Certificates and Diplomas. Figure 1, prepared by Tai Poutini Polytechnic, outlines an example of how this model would work. The Extractive sector should be involved in identifying qualification outcomes for each safety critical role, which would reflect the skills and knowledge required for that role.

Such qualifications would give new entrants to the industry a pathway for improving their skills and knowledge through the attainment of qualifications at various levels.

We believe a transition period similar to the 24 months discussed in the current proposal would be a suitable timeframe in which to establish this new qualification model. Much work has already been done by MITO and training providers to establish qualifications within the new NZQA framework. With suitable industry input into qualification outcomes, units of competency and training material, this work can be completed in that time.

Following the current WorkSafe/Mito review, we envisage that unit standards for a CoC would form part of the relevant qualification at the level in the NZQA Qualification framework, appropriate for their safety critical role. Recipients of a CoC could then achieve their qualification through their professional development (CPD), which is a requirement of their CoC.

**Figure 1. Qualification Framework (Tai Poutini Polytechnic)**

NZQA Level	Level 3	Level 4	Level 5 Certificate	Level 5 Diploma
Certificate of Competency	Operator	Supervisor	Site Specific / B Grade	A Grade
PROGRESSION Includes unit standards and experience				
NZ CERTIFICATE Level Descriptors	<p>A graduate of a level 3 certificate is able to:</p> <ul style="list-style-type: none"> <li>• Demonstrate some operational and theoretical knowledge in a field of work or study</li> <li>• Select from and apply a range of known solutions to familiar problems</li> <li>• Apply a range of standard processes relevant to the field of work or study</li> <li>• Apply a range of communication skills relevant to the role in the field of work or study</li> <li>• Apply literacy and numeracy skills relevant to the role in the field of work or study</li> <li>• Work under limited supervision</li> <li>• Demonstrate major responsibility for own learning and performance</li> <li>• Adapt own behaviour when interacting with others</li> <li>• Contribute to group performance</li> </ul>	<p>A graduate of a level 4 certificate is able to:</p> <ul style="list-style-type: none"> <li>• Demonstrate broad operational and theoretical knowledge in a field of work or study</li> <li>• Select and apply solutions to familiar and sometimes familiar problems</li> <li>• Select and apply a range of standard and non-standard processes relevant to the field of work or study</li> <li>• Apply a range of communication skills relevant to the role in the field of work or study</li> <li>• Demonstrate the self-management of learning and performance <b>under broad guidance</b></li> <li>• Demonstrate some responsibility for performance of others</li> </ul>	<p>A graduate of a level 5 certificate is able to:</p> <ul style="list-style-type: none"> <li>• Demonstrate broad operational or technical and theoretical knowledge within an aspect(s) of specific field of work or study</li> <li>• Select and apply a range of solutions to familiar and sometimes familiar problems</li> <li>• Select and apply a range of standard and non-standard processes relevant to the field of work or study</li> <li>• Demonstrate complete self-management of learning and performance within defined contexts</li> <li>• Demonstrate some responsibility for the management of learning and performance of others</li> </ul>	<p>A graduate of a level 5 diploma is able to:</p> <ul style="list-style-type: none"> <li>• Demonstrate broad operational or technical and theoretical knowledge within a specific field of work or study</li> <li>• Select and apply a range of solutions to familiar and sometimes familiar problems</li> <li>• Select and apply a range of standard and non-standard processes relevant to the field of work or study</li> <li>• Demonstrate complete self-management of learning and performance within defined contexts</li> <li>• Demonstrate some responsibility for the management of learning and performance of others</li> </ul>
NZ CERTIFICATE IN MINING & QUARRYING  Qualification outcomes at various levels	<ol style="list-style-type: none"> <li>1. Understand how health and safety is applied in the mining and quarrying industry, to undertake safety related tasks, under supervision</li> <li>2. Demonstrate foundation understanding and ability to safely complete entry-level tasks related to mining and quarrying operations and processes under supervision</li> <li>3. Communicate orally and in writing at a foundation level, within a mining and quarrying workplace, to contribute to team performance</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify hazards and participate in risk assessments to work safely in a surface mining and quarrying workplace, and comply with workplace health, safety and environmental requirements</li> <li>2. Apply knowledge of surface mining and quarrying operations, basic geology, and material properties to safely complete workplace tasks as directed</li> <li>3. Safely and productively operate plant and/or machinery used in surface mining and quarrying</li> <li>4. Adapt to change, communicate and work effectively as part of a team within a surface mining and quarrying workplace</li> </ol>	NZ Certificate at level 5 not currently available	<ol style="list-style-type: none"> <li>1. Supervise, lead and mentor staff and work teams at a mining and quarrying site</li> <li>2. Apply mining and quarrying regulations and procedures, and employment policies and procedures to supervise a mining and quarrying site</li> <li>3. Plan and lead risk assessment procedures and workplace health and safety and environmental procedures at a mining and quarrying site</li> <li>4. Develop standard operating procedures and other workplace documentation for a mining and quarrying operation</li> <li>5. Plan and lead workplace inspections and incident investigations at a mining and quarrying site</li> <li>6. Communicate with mining and quarrying operational clients, internal staff and the general public to meet relevant workplace policies and procedures</li> </ol>

## MinEx' ideal regime for CoCs and qualifications (Quarries)

Our long-term preferred position, which would require some amendment to regulation, is summarised below.

### A-Grade Quarry Manager

We propose to rename the Certificate of Competence ("CoC") A-Grade Quarry Manager to **Quarry Manager** and to replace the current requirement for a CoC containing a list of prescribed unit standards, with the **NZQA Diploma in Mining & Quarrying (Level 6)**. We believe the level descriptors of this qualification better reflect the skills and knowledge required to successfully manage a quarry. The extractives industry, through MinEx, should be involved in determining the qualification outcomes, at various levels, for each qualification in the Extractives sector. Specified experience requirements should be retained.

### B-Grade Quarry Manager

We propose to rename the CoC B-Grade Quarry Manager to **Quarry Supervisor** and replace the current requirement for a CoC containing a list of prescribed unit standards, with the **NZQA Certificate in Mining & Quarrying (Level 4)**. We believe the level descriptors of this qualification better reflect the skills and knowledge required to successfully supervise a quarry. The extractives industry, through MinEx, would like to be involved in determining the qualification outcomes, at various levels, for each qualification in the Extractives sector. Specified experience requirements should be retained.

### Manager of a Specified Quarry

We propose to replace the current requirement for a CoC containing a list of prescribed Unit standards, with the **NZQA Certificate in Mining & Quarrying (Level 5)**. We believe the level descriptors of this qualification better reflect the skills and knowledge required to successfully manage a Specific Quarry, that meets the risk profile proposed in this submission.

The extractives Industry, through MinEx, would like to be involved in determining the qualification outcomes, at various levels, for each qualification in the extractives sector. Specified experience requirements should be retained.

We also believe that the oral exam for this CoC should be conducted at the site. This will facilitate the Board of Examiners (BOE) panel assessing the suitability of the site within the risk based framework and the suitability of the applicant in relation to managing safety at that site. We also believe that the panel, which may be two or three, should include, where possible, an Inspector of Mines who is familiar with the site.

### Proposed risk profile for Specified Quarry

We are concerned that WorkSafe's specified quarry/site specific criteria are too restrictive, and we propose a risk-based framework instead. We consider it would provide the best framework for providing Site Specific CoCs.

Attachment 1 provides an example risk-assessment framework which we have developed for discussion purposes.

## **Response to WorkSafe's proposals**

We propose to respond to WorkSafe's policy document along the following lines:

### Proposed unit standards for A-Grade Quarry Manager, a B-Grade Quarry Managers and a Manager of a Specified Site

For the positions of an A-Grade Quarry Manager, a B-Grade Quarry Manager and a Manager of a Specified Quarry (Site Specific) we submit that the unit standards in Tables 1 – 3 respectively better reflect the skills and knowledge required to meet relevant obligations under the health and safety legislation.

We consider the A-Grade and B-Grade CoCs should be issued as either restricted (without blasting) or unrestricted (with blasting). This would mean that applicants only complete unit standards applicable to their operations i.e. a quarry supervisor at an alluvial quarry would not need to complete blasting unit standards if he/she only required a restricted CoC. CoC holders wishing to change from a restricted CoC to an unrestricted CoC would need to complete the relevant additional unit standards and make application to the BOE.

We believe that the oral exam for a Manager of a Specified Site should be conducted at the site. This will facilitate the BOE Panel assessing the suitability of the site within the risk based framework and the suitability of the applicant in relation to managing safety at that site. The panel, which may be two or three, should include, where possible, an Inspector of Mines who is familiar with the site.

### On the Quarry Manager/ Supervisor distinction

The Quarry Manager/ Supervisor distinction will be a good fit for operations with multiple small sites and for mobile crushing operations where plant is operating at multiple sites concurrently. Here the Quarry Manager would establish a new site and ensure the Health and Safety Management System is in place, while the supervisor would manage the day-to-day operations of the site.

### Leadership Unit Standards

We consider that Leadership Unit Standards should not be elective. Instead, each CoC should prescribe the required Leadership Unit standards that are relevant to the skills and knowledge required for the safety critical role they hold. This may require the development of additional units of competency directly linked to the leadership skills required for each position.

This is consistent with moving to a qualification-based model for CoCs, and our position that CoC Unit standards should reflect the holder's obligations under the HSAW Act and regulations.

### Definition of "workings"

In general we support this attempt to clarify the experience required of each CoC holder.

However, we consider the Board of Examiners has the power to judge applicants' suitability. We are concerned that applicants may not apply at all due to misunderstanding what experience is required, even if they are in fact suitable. To address this risk, we suggest the following words be added: "if you are unsure whether your experience is adequate for a particular CoC, contact the BOE and they will advise on the suitability of your experience for the relevant CoC."

### Transitional arrangements

We are generally happy with the proposed transitional arrangements.

### First Aid Unit Standards

We support the clarification of unit standards required for a First Aid Certificate.

## **Applicability of Quarry CoCs and qualifications to Alluvial Gold Mines**

Regulation 22, which covers the Certificate of competence for a manager of an alluvial mining operation, defines a CoC for an alluvial mining operation as an A Grade Quarry, or if less than 4 employees, a B Grade Quarry. We do not believe that the skills and knowledge required for an alluvial gold mine operation are adequately dealt with in the Quarry CoCs. The presence of old underground workings, the mining methods used, and management of water etc., are examples of significant differences between quarries and alluvial gold mines.

We propose that qualifications for Site Specific CoCs would be more relevant to the small alluvial gold sector. The risk based model would still apply to alluvial gold mines. Alluvial gold mine applicants that meet the criteria for a Site Specific CoC would do a restricted CoC as blasting is not applicable.

For alluvial gold mines that do not meet the requirements for a Site Specific CoC, we propose that a new CoC for an alluvial gold mine be developed that reflects the skills, knowledge and experience required to safely manage an alluvial gold mine.

These proposals would require changes to Regulation 22 and we strongly recommend that the Ministry of Business, Innovation and Employment consider this.

The oral exam for this CoC should be conducted at the site. This will facilitate the BOE panel assessing the suitability of the site within the risk based framework and the suitability of the applicant in relation to managing safety at that site. We also believe that the panel, which may be two or three, should include, where possible, an Inspector of Mines who is familiar with the site.

**APPENDIX 1**

## Risk based assessment - Specified Quarry

	Rating	Score
Number of employees		
1 or 2	1	1
3 or 4	2	
Over 4	3	
Blasting		
No	0	
Yes	2	2
Inrush risk ( working below water level)		
Low	0	0
Medium	1	
High	2	
Working benches ( not including excavator pads or stepdowns in alluvial operations)		
None	0	
1 bench	1	1
Multiple benches	3	
height of benches /stockpiles		
Under 5 m	0	
6 - 10 m	1	1
Over 10 m	2	
Voids/Underground workings		
None	0	0
Abandoned workings	2	
Existing underground workings	3	
Crushing and Screening		
None	0	
Screening only	1	
Crushing and screening	2	2
	Total	7

## Criteria for Specified Quarry CoC

- 1) Operating for a period of not less than 24 months ( does not have to be continuous)
- 2) First Aid certificate
- 3) Appropriate xperience
- 4) Risk score of 7 or less

Example here:

2 man operation, with blasting, single bench up to 10 metres, crushing and screening.

**TABLE 1**

	Unit standards	No.		Credits	
		No.	Level		
1) Develop, implement and maintain a Health & Safety Management System	28740	6	15	Establish & maintain the Occupational H&S Management System at an extractive site Demonstrate knowledge of the application of regulatory requirements to manage an extractive site	
	7142	6	25		
2) Develop & implement Risk Management processes including: Identification of fatal/principal hazards including: Traffic Ground control  Blasting ( ONLY REQUIRED FOR UNRESTRICTED COC)  Air quality/Hazardous substances	28739	6	15	Establish the risk management system at an extractive site	
	8905	3	5	Demonstrate knowledge of construction and maintenance of working surfaces at an extractive site	
	8899	4	8	Operate and maintain stockpiles and tipheads at an extractive site	
	15665	4	5	Demonstrate knowledge of geology and geotechnical features and failures for surface extraction	
	New std	3	3	Read and interpret a quarry plan	
	17694	3	10	Demonstrate knowledge of explosives and their properties ( Unit to include knowledge of misfires)	
21152	4	10	Demonstrate and apply knowledge of storing explosives for use		
3) Develop and implement an emergency response plan	16810	6	10	Develop a workplace emergency management plan	
4) Conduct workplace inspections and audits	7143/8902	5	10	Prepare a safety inspection plan, inspect and report on safety and operations at an extractive site ( This is a combined Unit and would include worker health requirements under Reg 108)	
5) Train workers and assess their competence	28982	5	5	Develop standard operating procedures for an extractive site	
	18337	4	5	Determine and co-ordinate training and development of a team <b>LEADERSHIP UNIT</b>	
6) Investigate incidents and accidents	16686	5	8	Conduct an incident investigation at an extractive site	
	17279	2	2	Demonstrate knowledge of a CIM system	
7) Communication and consultation with workers	11099	4	4	Develop strategies for communicating in a culturally diverse workplace <b>LEADERSHIP UNIT</b>	
	21335	4	5	Lead team to achieve an objective <b>LEADERSHIP UNIT</b>	
8) Supervise workers	26855	4	10	Analyse Human factors present in workplace practices at an extractive site	
	23648	3	5	Demonstrate knowledge of and follow safe working practices at an extractive site	
	Unrestricted		160	( Note: 160 credits are required for Diploma under the NZQA requirements)	
	Restricted		140		

**Note:**

1) The following unit standards have been added to the BOE proposal as it is believed they better address the requirements of the HSWA:

28739	This unit replaces the level 5 unit on risk management systems currently included
28740	Establish and maintain the Occupational H&S Management System at an Extractive site
16686	Develop a Workplace Emergency Plan

These units are currently core units in the SSE CoC. As most Quarry Managers have the responsibility for safety management at their site ( effectively acting as SSE also) we believe these units are critical to ensure Quarry Managers have the skills and knowledge to meet their obligations.

2) The following unit standards have been removed as it is believed these unit standards do not add any value to the skills and knowledge required for a Quarry Manager to meet his/her obligations under the HSWA:

- 21155
- 25878
- 15658
- 3271
- 21629
- 21661
- 22057
- 25876
- 29553
- 29554

It is acknowledged that some of these units will be picked up once the Diploma in Mining & Quarrying replaces the current CoC requirement.

3) We believe that leadership units should be prescribed based on the skills and knowledge required to meet a Quarry Manager's obligations under the HSWA. The current proposal allows applicants to choose units that may not necessarily add to the skills and knowledge required (as listed above).

4) We recommend that units 8902 and 7143 be merged and include worker health requirements such as health surveillance and exposure monitoring.

**TABLE 2**

Responsibilities of a Quarry Supervisor ( B grade Quarry Manager)	Unit standards			
	No.	Level	Credits	
1) Implement and maintain a Health & Safety Management System	28742	4	8	Explain H&S Legislation, and supporting documents applicable to an extractive site
2) Implement and participate in Risk Management processes including:	28983	5	10	Carry out the risk management process at an extractive site
Identification of fatal/principal hazards including:				
Traffic	8905	3	5	Demonstrate knowledge of construction and maintenance of working surfaces at an extractive site
Ground control	8899	4	8	Operate and maintain stockpiles and tipheads at an extractive site
	15665	4	5	Demonstrate knowledge of geology and geotechnical features and failures for surface extraction
	New std	3	3	Read and interpret a quarry plan
Blasting ( ONLY REQUIRED FOR UNRESTRICTED COC)	17694	3	10	Demonstrate knowledge of explosives and their properties ( Unit to include knowledge of misfires)
	21152	4	10	Demonstrate and apply knowledge of storing explosives for use
Air quality/Hazardous substances				
3) Implement an emergency response plan	New std	4	4	Implement a workplace emergency management plan
4) Conduct workplace inspections and audits	28793	4	4	Conduct safety inspections for extractive operations
5) Train workers and assess their competence	28982	5	5	Develop standard operating procedures for an extractive site
	18337	4	5	Determine and co-ordinate training and development of a team <b>LEADERSHIP UNIT</b>
6) Investigate incidents and accidents	16686	5	8	Conduct an incident investigation at an extractive site
	17279	2	2	Demonstrate knowledge of a CIM system
7) Communication and consultation with workers	11099	4	4	Develop strategies for communicating in a culturally diverse workplace <b>LEADERSHIP UNIT</b>
	21335	4	5	Lead team to achieve an objective <b>LEADERSHIP UNIT</b>
8) Supervise workers	26855	4	10	Analyse Human factors present in workplace practices at an extractive site
	23648	3	5	Demonstrate knowledge of and follow safe working practices at an extractive site
	Unrestricted		111	( Note: 80 credits are required for a level 4 Certificate under the NZQA requirements)
	Restricted		91	

**Note:**

1) We have based this CoC on the requirements of an Open Cast Coal B Grade CoC, which is currently gazetted as an acceptable Supervisor CoC.

2) The unit standards chosen cover the skills and knowledge required by a quarry supervisor to meet his/her obligations under the HSWA, under the guidance of a Quarry Manager holding the relevant CoC. It is acknowledged that some of the units removed from the current proposal, will be picked up once the Certificate in Mining & Quarrying replaces the current CoC requirement.

3) We believe that leadership units should be prescribed based on the skills and knowledge required to meet a Quarry Supervisor's obligations under the HSWA. The current proposal allows applicants to choose units that may not necessarily add to the skills and knowledge required (as listed above).

4) We recommend that unit 28793 be extended to include worker health requirements such as health surveillance and exposure monitoring.

5) We believe a new unit standard should be developed on implementing an emergency plan. This would be at a lower level to the 16810, level 6 unit.



**TABLE 3**

Responsibilities of a Manager of a Specified Quarry	Unit standards		Credits	
	No.	Level		
1) Implement and maintain a Health & Safety Management System	28742	4	8	Explain H&S Legislation, and supporting documents applicable to an extractive site
2) Implement and participate in Risk Management processes including: Identification of fatal/principal hazards including: Traffic Ground control  Blasting ( ONLY REQUIRED FOR UNRESTRICTED COC)  Air quality/Hazardous substances	28983 8905 8899 New std 17694 21152	5 3 4 3 3 4	10 5 8 3 10 10	Carry out the risk management process at an extractive site  Demonstrate knowledge of construction and maintenance of working surfaces at an extractive site Operate and maintain stockpiles and tipheads at an extractive site Read and interpret a quarry plan Demonstrate knowledge of explosives and their properties ( Unit to include knowledge of misfires) Demonstrate and apply knowledge of storing explosives for use
3) Implement an emergency response plan	New std	4	4	Implement a workplace emergency management plan
4) Conduct workplace inspections and audits	8902 28793	5 4	4 4	Prepare a safety inspection plan for extractive operations Conduct safety inspections for extractive operations
5) Train workers and assess their competence	28982 27565	5 3	5 4	Develop standard operating procedures for an extractive site Train colleagues in the workplace
6) Investigate incidents and accidents	16686 17279	5 2	8 2	Conduct an incident investigation at an extractive site Demonstrate knowledge of a CIM system
7) Communication and consultation with workers	1312 21335	3 4	3 5	Give oral instructions in the workplace Lead team to achieve an objective
8) Supervise workers	23648	3	5	Demonstrate knowledge of and follow safe working practices at an extractive site
		Unrestricted	98	( Note: 80 credits are required for a level 4 Certificate under the NZQA requirements)
		Restricted	78	

**Note:**

1) The following unit standards have been added to the BOE proposal as it is believed they better address the requirements of the HSWA:

8899	Operate and maintain stockpiles and tipheads at an extractive site
17694	Demonstrate knowledge of explosives and their properties ( Unit to include knowledge of misfires)
21152	Demonstrate and apply knowledge of storing explosives for use

The two blasting units will only apply if the applicant is seeking an unrestricted CoC.

2) The following unit standards have been removed as it is believed these unit standards do not add any value to the skills and knowledge required for a Manager of a Specified Quarry to meet his/her obligations under the HSWA:

- 3271
- 21155
- 21661
- 22057
- 25878
- 29553
- 29554

It is acknowledged that some of these units will be picked up once the Certificate in Mining & Quarrying replaces the current CoC requirement.

3) We believe that leadership units should be prescribed based on the skills and knowledge required to meet a Manager of a Specified Quarry's obligations under the HSWA. The current proposal allows applicants to choose units that may not necessarily add to the skills and knowledge required (as listed above).

4) We recommend that unit 28793 be extended to include worker health requirements such as health surveillance and exposure monitoring.

5) We believe a new unit standard should be developed on implementing an emergency plan. This would be at a lower level to the 16810, level 6 unit.

**LEADERSHIP UNIT**

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