

<b>Title</b>	<b>Describe and operate high-capacity slurry pumping systems at an extraction site</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>20</b>

<b>Purpose</b>	<p>People credited with this unit standard are able to: describe the operational characteristics and performance of, and demonstrate ability to operate, high-capacity slurry pumping systems; describe and demonstrate the adjustments and checks, safety systems required, and identify and remedy problems; describe the environmental constraints and controls for high-capacity slurry pumping systems; and complete documentation requirements for high-capacity slurry pumping systems.</p>
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<b>Classification</b>	Extractive Industries > Extractive Industries Management
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<b>Available grade</b>	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 (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.
- 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 **Definition**

*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).
- 4 This unit standard is intended for, but is not limited to, workplace assessment.

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## Outcomes and performance criteria

### Outcome 1

Describe the operational characteristics and performance of, and demonstrate ability to operate, high-capacity slurry pumping systems.

#### Performance criteria

- 1.1 The operational characteristics and performance of a high-capacity slurry pumping systems are described in terms of its operation in an extractive site.
- Range fluid and slurry properties, slurry concentration, particle sizes, flow velocity, flow capacity, pipeline resistance, friction, pump characteristics, pump circuits, pump stations, and topography.
- 1.2 High-capacity slurry pumping systems are described in terms of their components.
- Range pump types (centrifugal and reciprocating), drives, valves, flow meters, cyclones, slurry bins, high-pressure pipelines, instruments, controls and control room, support structures, pump system operation, bin agitators, product reclaim methods, cooling water dosing.
- 1.3 The high-capacity slurry pumping system is described in terms of its start-up and shut-down procedures.
- Range control systems, emergency stops, resets, going-off feed, and crash stop flushing.
- 1.4 High-capacity slurry pumping system is operated in accordance with industry best practice.
- Range control systems, emergency stops, resets, going-off feed.

### Outcome 2

Describe and demonstrate the adjustments and checks, safety systems required, and identify and remedy problems, for high-capacity slurry pumping systems.

#### Performance criteria

- 2.1 The adjustments and checks to be carried out are described in accordance with industry best practice.
- Range pre-start checks, slurry pump inspection and service checks, seal and packing leaks, pipeline leaks, flow velocity, bin agitators, reclaim system, instrument checks, controls, pump stations, routine inspection of pipeline, video monitoring, housekeeping.

2.2 The safe work practice and conditions for the high-capacity slurry pumping system operation are described in accordance with industry best practice.

Range trip-out/cut-off, alarm levels, communications, pipeline blockages, isolation procedures, crash stops, emergency inspections, fire fighting, safety rules.

2.3 High-capacity slurry pumping system problems are identified and remedied in accordance with industry best practice.

Range blocked pipelines, slurry bin, discharge problems, leaking pipelines and pumps, burst pipelines or pump casing, mechanical and electrical pump faults, valve failure and replacement, instrument faults, flow problems, reclaim problems, hang-ups, recyclable water.

### Outcome 3

Describe the environmental constraints and controls for high-capacity slurry pumping systems.

#### Performance criteria

3.1 The control and monitoring required is described in accordance with resource consents and industry best practice.

Range high-pressure pipeline maintenance, drainage control, flora and fauna protection, recyclable water up-take and discharge, cultural effects.

### Outcome 4

Complete documentation requirements for high-capacity slurry pumping systems.

#### Performance criteria

4.1 The reporting and recording of shift slurry production information is completed in accordance with industry best practice.

Range operator log sheets, slurry pumping flow rate and concentration, slurry flow volumes, product quality, control room reports.

4.2 The reporting and recording of defects and hazards are completed in accordance with industry best practice.

Range high-pressure pump faults, pump station problems, pipeline and seal leaks, valve replacements, instruments, hazards.

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**This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.**

**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	31 July 2001	31 December 2019
Review	2	24 November 2005	31 December 2027
Rollover and Revision	3	16 July 2010	31 December 2027
Rollover and Revision	4	25 January 2018	31 December 2027
Review	5	27 November 2025	31 December 2027

<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>.