Title	**Describe and operate slurry pumping systems at an extraction site**		
Level	**4**	**Credits**	**20**

Purpose	People credited with this unit standard are able to: describe the operational characteristics and performance of slurry pumping systems; describe the adjustments and checks, and safety systems required for slurry pumping systems; check readiness and operate slurry pumping systems; describe the in-stream analysing systems used for slurry pumping; and complete the documentation requirements for slurry pumping systems.

Classification	Extractive Industries > Extractive Industries Management

Available grade	Achieved

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 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).
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.

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

Outcomes and performance criteria

Outcome 1

Describe the operational characteristics and performance of slurry pumping systems.

Performance criteria

1.1 The operational characteristics and performance of slurry pumping systems are described in terms of their 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.

1.2 Slurry pumping systems are described in terms of their components and operation.

Range pumps, drives, valves, flow meters, cyclones, slurry bins, pipelines, instruments, controls, support structures, pump system operation, bin agitators.

1.3 Slurry pumping systems are described in terms of start-up and shut-down procedures.

Range control systems, emergency stops, re-sets, going-off feed.

1.4 The operating procedures required for slurry pumping systems are described in accordance with industry best practice.

Range start-up and shut-down, priming, inlet valves, flow rate and volume, slurry flow diagram, quality control, make-up water.

Outcome 2

Describe the adjustments and checks, and safety systems required for slurry pumping systems.

Performance criteria

2.1 Adjustments and checks to be carried out in slurry pumping systems are described in accordance with industry best practice.

Range pre-start checks, slurry pump maintenance, seals and packing leaks, pipeline leaks, pipeline alignment and structure, flow velocity, bin agitators, instrument checks, controls.

2.2 The safety systems of the slurry pumping system operation are described in accordance with industry best practice.

Range trip-out/cut-off, alarm levels, communications, pipeline blockages, isolation procedures, safety rules.

Outcome 3

Check readiness and operate slurry pumping systems.

Performance criteria

3.1 Adjustments and checks in slurry pumping systems are completed in accordance with industry best practice.

Range pre-start checks, slurry pump maintenance, seals and packing leaks, pipeline leaks, pipeline alignment and structure, flow velocity, bin agitators, instrument checks, controls.

3.2 Identified defects in slurry pumping systems are reported and managed in accordance with industry best practice and site requirements.

Range blocked pipelines, suction problems, discharge problems, leaking pipelines and pumps, burst pipelines, mechanical and electrical pump faults, instrument faults, flow problems, sediment bins.

3.3 Slurry pumping systems are operated in accordance with the job and the specifications of the machine.

Range operation includes – manoeuvring, load, carry, discharge, cable care.

Outcome 4

Describe the in-stream analysing systems used for slurry pumping.

Performance criteria

4.1 The types of in-stream analysing methods used are described in terms of radioactive analysers, density monitors, and flow meters.

4.2 The operation and operator duties for in-stream analysing systems are described in accordance with industry best practice.

4.3 The safety system and checks required for in stream analysing systems are described in accordance with industry best practice.

Range start-up checks, secondary samplers, rupture alarms, flow meters, control instruments.

Outcome 5

Complete the documentation requirements for slurry pumping systems.

Performance criteria

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

Range operator log sheets, slurry pumping flows and concentrations, slurry volumes.

5.2 The reporting and recording of defects and hazards is completed in accordance with industry best practice.

Range pump faults, discharge problems, pipeline and seal leaks, ruptured in-stream analyser windows, hazards.

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

Consent and Moderation Requirements (CMR) reference	0114

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