

Title	Shut down, isolate and start up machines and equipment		
Level	3	Credits	3

Purpose	People credited with this unit standard are able to – prepare for shut down, isolation, and start up of machines and equipment; shut down and isolate machines and equipment; start up machines and equipment following shut down and isolation; and complete applicable documentation.
----------------	---

Classification	Mechanical Engineering > Maintenance and Diagnostics in Mechanical Engineering
-----------------------	--

Available grade	Achieved
------------------------	----------

Guidance Information

- 1 Unit 21912, *Apply safe working practices on an engineering worksite*; and Unit 29652, *Demonstrate knowledge of safety, health, risk assessment, and hazard ID and control on an engineering worksite*, are recommended for entry into this unit standard.
- 2 Legislation
Health and Safety at Work Act 2015.
- 3 Definitions
Accepted industry practice – approved codes of practice and standardised procedures accepted by the wider mechanical engineering industry sectors as examples of best practice.
Machines and equipment – manual, semi-automatic, and automatic machines of a stand-alone, continuous production, or process nature.
Workplace procedures – procedures used by the organisation carrying out the work and applicable to the tasks being carried out. Examples are – standard operating procedures, safety procedures, equipment operating procedures, codes of practice, quality management practices and standards, procedures to comply with legislative and local body requirements.
- 4 Range
 - Examples of types of machines and equipment are – mechanical drives, electrical drives, pipework, pressure supply systems, and rotating equipment;
 - Shut down, isolation, and start up is required for a minimum of three types of machines and equipment, each with different isolation requirements.
- 5 Assessment information
Evidence must be from a mechanical engineering context.

All activities must be performed in accordance with relevant legislative and/or regulatory requirements; applicable workplace procedures and accepted industry practice.

Outcomes and performance criteria

Outcome 1

Prepare for shut down, isolation, and start up of machines and equipment.

Performance criteria

- 1.1 Shut down, isolation and start up procedures are established.
- 1.2 The effects of shut down on upstream and downstream machines and equipment are identified.
- 1.3 Personnel affected by the shut down, isolation and start up procedures are advised.
- Range immediate location, associated upstream, and downstream equipment.
- 1.4 Hazards associated with the shut down isolation and start up procedures are identified and eliminated or minimised.
- Range examples are – moving parts, potential energy, power source(s).
- 1.5 Safety devices for the shut down isolation and start up procedures are identified and prepared.
- Range examples are – operator keys, fixtures, interlocked gates, braking and locking systems, isolation padlocks and tags.

Outcome 2

Shut down and isolate machines and equipment.

Performance criteria

- 2.1 Machines and equipment are shut down.
- 2.2 Machine and equipment safety devices are used in accordance with job requirements.
- Range examples of safety devices are – operator keys, fixtures, interlocked gates, braking and locking systems, isolation padlocks and tags, chocks, safety pins.
- 2.3 Stored or residual energy is dissipated or restrained.

- 2.4 Machine and equipment isolation is verified, and all relevant personnel are advised.
- 2.5 Machine and equipment records are completed for shut down and isolation.

Outcome 3

Start up machines and equipment following shut down and isolation.

Performance criteria

- 3.1 The work area is inspected and hazards identified and eliminated or minimised.
- Range inspection includes – obstructions, incomplete work, guards in place.
- 3.2 Safety devices are removed.
- 3.3 All personnel affected by the start up procedure are advised.
- Range immediate location, associated upstream and downstream equipment.
- 3.4 Machinery and equipment is started up.
- 3.5 All personnel affected by the machinery start up are advised of machine in-service status.

Outcome 4

Complete applicable documentation

Performance criteria

- 4.1 Documentation is completed for shut down, isolation, and start up.

Planned review date	31 December 2022
----------------------------	------------------

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	25 October 1994	31 December 2011
Revision	2	14 April 1997	31 December 2011
Revision	3	5 January 1999	31 December 2011
Revision	4	18 September 2001	31 December 2011
Review	5	28 April 2003	31 December 2011
Revision	6	25 July 2006	31 December 2011
Rollover	7	20 June 2008	31 December 2014
Review	8	15 April 2011	31 December 2022
Review	9	16 March 2017	N/A
Revision	10	13 December 2018	N/A

Consent and Moderation Requirements (CMR) reference

0013

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

Comments on this unit standard

Please contact Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.