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.

<table>
<thead>
<tr>
<th>Range</th>
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</thead>
<tbody>
<tr>
<td>immediate location, associated upstream, and downstream equipment.</td>
</tr>
</tbody>
</table>

1.4 Hazards associated with the shut down isolation and start up procedures are identified and eliminated or minimised.

<table>
<thead>
<tr>
<th>Range</th>
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</thead>
<tbody>
<tr>
<td>examples are – moving parts, potential energy, power source(s).</td>
</tr>
</tbody>
</table>

1.5 Safety devices for the shut down isolation and start up procedures are identified and prepared.

<table>
<thead>
<tr>
<th>Range</th>
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<tbody>
<tr>
<td>examples are – operator keys, fixtures, interlocked gates, braking and locking systems, isolation padlocks and tags.</td>
</tr>
</tbody>
</table>

#### 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.

<table>
<thead>
<tr>
<th>Range</th>
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</thead>
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<tr>
<td>examples of safety devices are – operator keys, fixtures, interlocked gates, braking and locking systems, isolation padlocks and tags, chocks, safety pins.</td>
</tr>
</tbody>
</table>

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

<table>
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<th>Version</th>
<th>Date</th>
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<td>31 December 2011</td>
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<td>14 April 1997</td>
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<td>13 December 2018</td>
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### Consent and Moderation Requirements (CMR) reference


### 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.