

Title	Coordinate an outage in a complex energy and chemical plant		
Level	5	Credits	30

Purpose	<p>This unit standard is intended for experienced people working as supervisors of boiler and energy and chemical process operators or advanced technical personnel in an energy and chemical plant.</p> <p>People credited with this unit standard are able to: contribute to a plan for the outage; coordinate the operational shutdown and plant isolation; coordinate operational components during the execution of the outage plan; coordinate the commissioning and testing of equipment and plant; coordinate the plant handover and start-up; contribute to the outage debriefing; and evaluate own performance in coordinating operational components of the outage plan, in a complex energy and chemical plant.</p>
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Classification	Energy and Chemical Plant > Operation of Energy and Chemical Plant
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Available grade	Achieved
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Guidance Information

- Legislation relevant to this unit standard includes but is not limited to:
 - Hazardous Substances and New Organisms Act 1996;
 - Health and Safety at Work Act 2015;
 - Resource Management Act 1991;
 - and any subsequent amendments.
- Definitions

Complex energy and chemical plant – a plant with a number of integrated pieces of equipment that collectively provide a product or a range of products to internal and/or external customers.

Energy and chemical plant may be in – petrochemical, agri-nutrient, power generation, dairy processing, meat processing, and wood fibre manufacturing, or other plants that operate with a combination of high temperatures, pressures, steam and/or chemicals in gas, liquid or solid form.

Organisational requirements – documented policies and procedures. These may include: equipment manufacturers' procedures; plant procedures; suppliers' instructions; site signage; codes of practice; company health and safety plans; on site briefings; and supervisor's instructions. This includes all regulatory and legislative obligations that apply to the plant.

Outage – the planned shutdown and maintenance or inspection of equipment and plant and the re-establishment of plant operation.

Outage stakeholders – staff in other parts of the plant that are involved or impacted by the outage, and external suppliers, contractors and customers.

Plant – the operational unit, equipment and/or workplace at which the person is working.

3 For the purposes of assessment:

- evidence for the practical components of this unit standard must be supplied from the workplace.
- evidence for all outcomes must be presented in accordance with organisational requirements.

Outcomes and performance criteria

Outcome 1

Contribute to a plan for the outage in a complex energy and chemical plant.

Performance criteria

- 1.1 Identify operational activities intended to be completed in the outage and collate detail for the outage plan.
- Range operational activities may include but are not limited to – shutdown equipment, isolations, housekeeping, equipment preparation, hand over, inspections, de-isolation, re-commissioning, testing, start-up.
- 1.2 Collate information relating to the planned operational activities.
- Range information may include but is not limited to – activity timeframes, personnel requirements, materials, equipment, activity start conditions, other resources.
- 1.3 Provide operational input into the management, performance, and implementation of the outage plan.
- 1.4 Liaise with outage stakeholders to confirm operational aspects of the outage plan.
- 1.5 Identify and resolve any conflicts arising in operational activities.
- 1.6 Liaise with and collate information from outage stakeholders for the outage plan.
- 1.7 Communicate the outage plan to outage stakeholders.

Outcome 2

Coordinate the operational shutdown and plant isolation in a complex energy and chemical plant.

Performance criteria

- 2.1 Monitor activities in the shutdown plan and take action to maintain the required progress.
- 2.2 Monitor activities in the isolation plan and take action to ensure the safety of personnel and plant.
- 2.3 Complete checks to confirm equipment and plant are safe to hand over to relevant work groups.
- 2.4 Complete equipment and plant handover procedures in accordance with the shutdown plan.
- 2.5 Complete communication and reporting requirements for the shutdown and isolation plans.

Outcome 3

Coordinate operational components during the execution of the outage plan in a complex energy and chemical plant.

Performance criteria

- 3.1 Implement and monitor safe work management system requirements for the daily work plans to ensure a safe work environment.
- 3.2 Review human and physical resources required for daily work plans and take action to ensure timely progress against the outage plan.
- 3.3 Communicate progress of operational components of the outage plan and report to outage stakeholders.
- 3.4 Maintain an overview of the outage progress through liaison with outage stakeholders and communicate any amendments to the outage plan to outage stakeholders.

Outcome 4

Coordinate the commissioning and testing of equipment and plant in a complex energy and chemical plant.

Performance criteria

- 4.1 Review human and physical resource plans for commissioning and testing and take action to ensure scheduled activities are completed as planned.
- 4.2 Implement and monitor safe work management system requirements for the scheduled commissioning and testing to ensure a safe work environment.

- 4.3 Communicate and report commissioning and testing progress to outage stakeholders.

Outcome 5

Coordinate the plant handover and start-up in a complex energy and chemical plant.

performance criteria

- 5.1 Confirm completion of the outage work plan with outage stakeholders.
- 5.2 Complete operational acceptance of equipment.
- 5.3 Monitor activities in the plant de-isolation plan and take action to ensure personnel and plant safety.
- 5.4 Monitor activities in the pre-start and start-up plan and take action to maintain progress.
- 5.5 Communicate and report progress of the start-up to outage stakeholders.

Outcome 6

Contribute to the outage debriefing in a complex energy and chemical plant.

Performance criteria

- 6.1 Analyse operational personnel, resource and timeframe overruns to determine the root cause.
- 6.2 Communicate outcomes of the analysis to outage stakeholders.
- 6.3 Recommend modifications to the methodology, tasks, activities, personnel, resources, timeframes and safe work management system to improve future outage planning.

Outcome 7

Evaluate own performance in coordinating operational components of the outage plan in a complex energy and chemical plant.

Performance criteria

- 7.1 Evaluate own performance incorporating a balance of positive and negative experiences related to coordinating operational components of the outage plan.
- 7.2 Review own actions and decisions to determine the cause of positive and negative experiences.
- 7.3 Develop and record recommendations for improvement.

Replacement information	This unit standard was replaced by skill standard 40464.
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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	24 October 2014	31 December 2022
Review	2	27 February 2020	31 December 2026
Review	3	24 April 2025	31 December 2026

Consent and Moderation Requirements (CMR) reference	0079
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.