

Qualification Title: New Zealand Certificate in Energy and Chemical Field Operations (Level 4) with strands in Process Plant Equipment, Steam Plant, Geothermal Operation, Petrochemical Operation, Petrochemical Station, and Petrochemical Transfer and Storage

Qualification number: 2307

Date of review: 13 May 2019

This report refers to graduates awarded this qualification prior to: **31 December 2018**

Final decision on consistency of the qualification: National consistency is confirmed

Threshold:

The threshold to determine sufficiency with the graduate profile was determined as evidence of:

Graduates able to, under broad supervision, in an energy or chemical plant:

- Apply safe risk assessment and health and safety procedures
- Isolate and re-commission equipment
- Use control systems to identify, respond to, and report equipment faults.

Graduates of the Process Plant Equipment Strand* are also able to:

- Operate and monitor process plant equipment.

Graduates of the Stream Plant Stand* are also able to:

- Operate and monitor boiler plant equipment.

Graduates of the Geothermal Operation Strand* are also able to:

- Operate and control geothermal steam equipment.

(*These three stands had graduates during the graduate reporting period)

Education Organisations with sufficient evidence

The following education organisations have been found to have sufficient evidence.

Education Organisation	Final rating
Competenz	Sufficient
Primary Industry Training Organisation	Sufficient
Connexis	Sufficient

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Introduction

The purpose of this Level 4 qualification is to provide the energy and chemical plant industry with competent employees who have attained the operational skills and knowledge required to work as field operators. It is suitable for individuals who are already working as field operators, or those wishing to enter the role.

The qualification has 6 strands, which are intended to enable candidates to apply the specialist knowledge and skills required to operate a range of energy or chemical plant functions.

Graduates would have established standards of professional performance for the safe and efficient operation of an energy or chemical plant under broad guidance, carrying out a range of routine and non-routine tasks.

An energy or chemical plant context may occur in petrochemicals, agri-nutrients, power generation, dairy processing, meat processing and wood fibre manufacturing or other plants that operate with a combination of high temperature, pressures, steam and/or chemicals in gas, liquid or solid form.

This qualification builds on the New Zealand Certificate in Energy and Chemical Operations (Plant and Machinery) (Level 3) [Ref: 2305], and/or the New Zealand Certificate in Energy and Chemical Operations (Boiler Operation) (Level 3) [Ref: 2306]. However these qualifications are not prerequisites. This qualification can lead to the New Zealand Certificate in Energy and Chemical Plant Control Room Operations (Level 5) with strands in Chemical Plant, Steam Generation Plant, and Plant Outage Co-ordination [Ref: 2308].

The Primary ITO is the qualification developer for this qualification. The review of this qualification had commenced at the time of this consistency review. A representative from the ITO participated in the consistency review meeting, along with representatives of the three tertiary education organisations who have had graduates from their programmes. A member of NZQA's Approvals and Accreditation team also attended the meeting as an observer.

The Consistency Review for the Level 3 New Zealand Certificate in Energy and Chemical Operations (Plant and Machinery) [Ref: 2305] was conducted at the same meeting, as the Tertiary Organisations presenting, also had graduates from the Level 3 qualification.

During the graduate reporting period (1 January 2014 to 31 December 2018) the three education organisations had a total of 68 graduates of the NZ Certificate in Energy and Chemical Filed Operations (Level 4). Graduates achieved the following strands; Process Plant Equipment Strand (9), Steam Plant Strand (50), and Geothermal Operation Strand (9), and have been able to apply the specialist knowledge and skills required in these specific sectors.

Evidence

The education organisations provided a range of evidence to demonstrate that their graduates met the graduate profile outcomes.

The criteria used to judge the evaluation question were:

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- The nature, quality and integrity of the evidence presented by the education organisation.
- How well the organisation has analysed, interpreted and validated the evidence, and used the understanding gained to achieve actual or improved consistency.
- The extent to which the education organisation can reasonably justify and validate claims and statements relating to the consistency of graduate outcomes, including in relation to other providers of programmes leading to the qualification.

Two of the ITOs managed workplace training programmes, with trainees learning and applying skills on the job and being assessed by the ITO trained workplace assessors in the Electricity Supply and the Wood Fibre manufacturing industries. The other ITO contracted the provision to registered providers who offered block courses, marking of assessments completed in the workplace, and site visits with a plant walk as a capstone assessment. The ITO monitors its trainees' progress at their workplaces in a variety of sectors and industries managing boilers and steam pressure equipment as part of its business operation.

Programme evidence

The education organisations provided details of their approved Programmes of Industry Training. The documentation demonstrated how their programmes, and unit standards mapped to the graduate profile outcomes.

All education organisations confirmed they had met the conditions for the programme context, as specified in the qualification document, by ensuring their training and resources were kept-up-to-date with regard to, and replacements of, legislation and industry standards applicable to the energy and chemical plant sector.

Reporting on moderation processes and outcomes showed that the educational organisations had robust moderation policies, internal and external moderation activities had been undertaken in accordance with schedules. The education organisations had pre-moderated their assessment tools, or those developed by the company they worked with. They had provided training through workshops and on-line resources for their workplace assessors and providers and supported assessors in the workplaces. Moderation results showed that assessor decisions were generally consistent and at the national standard.

Internal quality assurance processes, including annual self-assessment activities and improvement plans demonstrated that the organisations were reflecting on their outcomes, planning and implementing improvements. Changes to learning resources and assessments were being made based on feedback from support teams, learners and stakeholders.

One education organisation has developed a 'Delivery Management Framework' as a mechanism for selecting, monitoring and evaluating the providers they contract to deliver training, and are expecting this to better support learner progressions and enable employers to get the skills they need.

Graduate feedback

The education organisations had collected feedback from their graduates using surveys. Results showed that graduates considered they had met the graduate profile outcomes and had increased confidence in their roles. Graduates' specific comments related to how they

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valued the learning, had a greater depth of understanding of their plant and equipment and saw the benefits of their training to their employer. Some graduates indicated they were likely to enrol in further study.

One education organisation had included questions about how the learnings from the qualification had enabled them to contribute to their community and whanau, with responses showing that they had more earning potential and gained valuable life skills.

Some of the education organisations acknowledged the need to improve their survey response rates and were investigating alternative methodologies for gaining feedback from their graduates.

Destinations and Employer feedback

Graduate employment rates were very high (close to 100%), with the majority of those in continuing employment with the company they had trained with, and many gaining career progressions as a result of completing the qualification.

Employer feedback was collected by all education organisations and was very positive, demonstrating employers valued the qualification and the skills and knowledge their employees gained from the training.

All three education organisations had strong connections with the industries, within their industry training scope, and had good mechanisms for collecting feedback and involving them in programme development and review.

How well does the self-assessment and supporting evidence provided by the education organisation demonstrate that its graduates match the graduate outcomes at the appropriate threshold?

Overall, the self-assessment and supporting evidence supplied by the three ITOs demonstrate that their graduates meet the graduate outcomes at the determined threshold.

Programmes of Industry Training were well designed and provided coverage of the graduate profile outcomes. Moderation process and results indicated there was quality assessment undertaken by all organisations. Internal self-assessment and continuous improvement processes were evidenced.

Feedback from graduates, employers and industry stakeholders provides verification that graduates are demonstrating evidence of meeting the qualification graduate profile outcomes.

The high rates of employment shows industry values graduate's skills and knowledge gained from the qualification, and they are supporting career progressions and further study for the graduates (their employees).

Industry engagement with the education organisations was strong and endorsed their claims that they were meeting the needs of industry through producing graduates who met the qualifications outcomes.

Special Focus (includes special focus on a strand or outcome)

None.

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Recommendations to Qualification Developer

The Qualification Developer's attention is drawn to an error in the qualification document. It makes reference to 'Candidates seeking the optional endorsement must already have met the requirements for the qualification with one of the strands.' There is no optional endorsement for this qualification. This should be taken into account in the current review process.

There has been no demand for the Petrochemical Operation, Petrochemical Station and Petrochemical Transfer and Storage strands over the life of the qualification. It is recommended that the Qualification Developer discuss this with the relevant industries to assess their ongoing need for these strands.