

FIELD MANUFACTURING**Review of *Energy and Chemical Plant* unit standards**

Subfield	Domain	Id
Energy and Chemical Plant	Monitoring of Energy and Chemical Plant	3054, 3058, 3060, 21452, 21453
	Operation of Energy and Chemical Plant	3032, 3035-3037, 3045, 3047, 3048, 3051-3053, 4553, 4559, 17603-17611, 21454-21466
	Safety and Legislation for Energy and Chemical Plant	3046, 3064, 21467-21469, 21470

The NZ Extractive Industries Training Organisation has completed the review of the unit standards listed above.

Date new versions published

May 2009

Planned review date

December 2011

Summary of review and consultation process

New qualifications utilising these unit standards were only registered in December 2007. As a result of this the unit standards have had little use. The Steam and Hazardous Gases Advisory Group has completed this review of unit standards to address issues raised in moderation relating to special notes, the generic nature of unit standard 21467, and following feedback from the Inspections Bodies relating to the boiler operating unit standards.

Main changes resulting from the review

The boiler operating unit standards were given new titles and special notes to clarify their use. All unit standards had changes to their special notes to update the definition of organisational requirements, and to rationalise special notes relating to relevant legislation.

- Unit standard 21467 changed title and has been reclassified to the Occupational Health and Safety Practice domain and standard setting responsibility has been transferred to the New Zealand Industry Training Organisation
- Unit standards 3035, 3045, 3048, 3052, 17605, 17606, 17609, 21452, 21454, 21457, 21459, 21461, 21462, 21469, 21470 changed title
- Unit standard 3037 changed title and special notes were added to clarify its use
- Unit standards 4553 and 4559 changed title and their special notes were updated
- The level of unit standard 21463 increased from 2 to 3, changed title, and special notes were updated to clarify its use.

Impact on existing provider accreditations

Current Accreditation for			Accreditation extended to		
Nature of accreditation	Classification	Level	Nature of accreditation	Id	Level
Subfield	Energy and Chemical Plant	any	Standard	21467	3
Domain	Safety and Legislation for Energy and Chemical Plant	any	Standard	21467	3

Impact on Accreditation and Moderation Action Plan (AMAP)

Unit standard 21467 has been transferred from AMAP 0079 to AMAP 0171.

Impact on existing qualifications

Qualifications that contain the reviewed standards or classifications are tabled below.

Affected	The qualification lists a reviewed classification (domain or subfield) in an elective set The qualification lists a standard that has changes to level or credits The qualification lists a C or D category standard
Not materially affected	The qualification lists a standard that has a new title The qualification lists a standard that has a new classification

The following NZ Extractive Industries Training Organisation qualifications are affected by the outcome of this review and will be reviewed in 2010.

Qualification title	Standard in the qualification
National Certificate in Energy and Chemical Plant (Boiler Operation) (Level 2) [Ref: 1342]	21463
National Certificate in Energy and Chemical Plant (Process Operation) with optional strands in Steam Generation; Turbine Operations; Waste Treatment; Refrigeration; Chemical Continuous Process; Chemical Batch Process; Solid Handling; Petrochemical Field Operations; Petrochemical Control Room Operations; Petrochemical Production Storage; Kraft Cycle Operations; Kraft Bleach and Chemical Operations; and Kraft Pulping and Chemical Plant [Ref: 1344]	21463

The following NZ Extractive Industries Training Organisation qualifications are not materially affected by the changes. They will be updated when they are next reviewed.

Qualification title	Standard in the qualification
National Certificate in Energy and Chemical Plant (Boiler Operation) (Level 2) [Ref: 1342]	21452, 21461, 21462, 21467, 21469, 21470
National Certificate in Energy and Chemical Plant (Process Operation) (Level 2) with optional strands in Petrochemical Industry; Kraft Pulp and Chemical Operations; and Kraft Liquor Evaporation [Ref: 1343]	4553, 21452, 21459, 21469

Qualification title	Standard in the qualification
National Certificate in Energy and Chemical Plant (Process Operation) with optional strands in Steam Generation; Turbine Operations; Waste Treatment; Refrigeration; Chemical Continuous Process; Chemical Batch Process; Solid Handling; Petrochemical Field Operations; Petrochemical Control Room Operations; Petrochemical Production Storage; Kraft Cycle Operations; Kraft Bleach and Chemical Operations; and Kraft Pulping and Chemical Plant [Ref: 1344]	3035, 3037, 3045, 3048, 3052,,17609, 21454, 21457,

The following qualifications are also affected by the outcome of this review. The standard setting bodies (SSBs) have been advised that they require revision.

Qualification title	Standard in the qualification	SSB Name
National Certificate in Plastics Processing Technology (Production) (Level 2) with strands in General, Injection Moulding, Extrusion, Blow Moulding, Pressure Thermoforming, Vacuum Thermoforming, Blown Film Extrusion, Film Conversion, Injection Stretch-Blow Moulding, Rotational Moulding, Expanded Polystyrene Moulding, and Polystyrene Pre-expansion [Ref: 1362]	21463	Plastics and Materials Processing Industry Training Organisation Incorporated
National Certificate in Plastics Processing Technology (Production) (Level 3) with strands in General, and Expanded Polystyrene Moulding [Ref: 1363]	21463	

The following qualifications are not materially affected by the outcome of this review. The standard setting bodies (SSBs) have been advised that they require revision.

Qualification title	Standard in the qualification	SSB Name
National Certificate in Electricity Supply (Thermal Operator) (Level 4) with strands in Thermal Operations, Combined Cycle Operations, and Geothermal Operations [Ref: 0894]	17609	Electricity Supply Industry Training Organisation
National Certificate in Wood Manufacturing – Generic Skills (Workplace Safety and Operations) (Level 2) [Ref: 1304]	21467	Forest Industries Training and Education Council

Qualification title	Standard in the qualification	SSB Name
National Certificate in Wood Manufacturing Foundation Skills (Level 2) with strands in Pulp and Paper Manufacturing; Solid Wood Manufacturing; Sliced Veneer Operations; Technical Awareness; Wood Handling and Distribution; Wood Panel Manufacturing; and Wood Product Manufacturing [Ref: 1305]	21459, 21462	Forest Industries Training and Education Council
National Certificate in Solid Wood Manufacturing (Level 3) with strands in Engineered Wood Product Operations; Laminated Veneer Lumber (LVL) and Plywood Operations; Planer Operations; Pole and Post Operations; Saw Centre Operations; Timber Drying Operations; Timber Grading Operations; Timber Treatment Operations; Veneer Preparation; and Wood Product Operations [Ref: 1306]	21452, 21457, 21467	
National Certificate in Solid Wood Manufacturing (Advanced) with strands in Laminated Veneer Lumber (LVL) and Plywood Manufacturing; Sawmilling; Timber Drying; Timber Grading; and Timber Treatment [Ref: 1307]	21457	
National Certificate in Wood Handling and Distribution (Level 3) with strands in Log Yard and Wood Preparation; and Timber Yarding and Despatch [Ref: 1308]	21467	
National Certificate in Wood Fibre Manufacturing (Level 3) with strands in Composite Panel Preparation; Composite Panel Forming and Pressing; Composite Panel Finishing; Mechanical Pulping Operations; Pulp and Paper Dry End Operations; and Pulp and Paper Wet End Operations [Ref: 1309]	21467	
National Certificate in Paint Manufacturing (Level 3) [Ref: 1365]	21467	Plastics and Materials Processing Industry Training Organisation Incorporated

Review Categories and changes to classification, title, level, and credits

All changes are in **bold**.

Key to review category	
A	Dates changed, but no other changes are made - the new version of the standard carries the same Id and a new version number
B	Changes made, but the overall outcome remains the same - the new version of the standard carries the same Id and a new version number
C	Major changes that necessitate the registration of a replacement standard with a new Id
D	Standard will expire and not be replaced

Subfield Energy and Chemical Plant

Domain Monitoring of Energy and Chemical Plant

Id	Title	Level	Credit	Review Category
3054	Read and interpret instruments used on energy and chemical plant	3	5	B
3058	Perform gas tests for energy and chemical plant	4	5	B
3060	Take product samples for energy and chemical plant	2	3	B
21452	Monitor energy and chemical plant and processes Monitor energy and chemical plant operations	3	5	B
21453	Demonstrate knowledge of control systems on energy and chemical plant	4	10	B

Domain Operation of Energy and Chemical Plant

Id	Title	Level	Credit	Review Category
3032	Operate valves on energy and chemical plant	4	8	B
3035	Operate fired pressure equipment (at or above 20 MW) on energy and chemical plant Operate fired pressure equipment on energy and chemical plant	4	10	B
3036	Operate unfired pressure equipment on energy and chemical plant	2	4	B
3037	Operate steam generation equipment (at or above 20 MW) Operate and monitor advanced boiler plant	4	14	B
3045	Operate solid handling systems for energy and chemical plant Operate solid handling systems on energy and chemical plant	3	5	B
3047	Interpret, use, and sketch process drawings for energy and chemical plant	3	2	B
3048	Operate product storage equipment for energy and chemical plant Operate product storage equipment on energy and chemical plant	4	4	B
3051	Operate heat exchange equipment on energy and chemical plant	4	6	B

Id	Title	Level	Credit	Review Category
3052	Operate an auxiliary internal combustion engine on an energy and chemical plant Operate an auxiliary internal combustion engine on energy and chemical plant	2	4	B
3053	Operate a gas turbine on energy and chemical plant	3	3	B
4553	Operate common pumps, compressors and fans in a chemical and energy environment Operate common pumps, compressors and fans on energy and chemical plant	2	5	B
4559	Operate common valves in an energy and chemical environment Operate common valves on energy and chemical plant	2	3	B
17603	Demonstrate knowledge of properties of raw water and its uses in energy and chemical plant	2	6	B
17604	Operate primary treatment systems for effluent water from energy and chemical plant	4	8	B
17605	Demonstrate knowledge of air conditioning systems with energy and chemical plant Demonstrate knowledge of air conditioning systems on energy and chemical plant	2	8	B
17606	Operate and maintain refrigerated air conditioning equipment with energy and chemical plant Operate and maintain refrigerated air conditioning equipment on energy and chemical plant	4	10	B
17607	Operate geothermal steamfield equipment and processes	2	9	B
17608	Operate sludge treatment systems for effluent water from energy and chemical plant	4	8	B
17609	Operate geothermal binary turbines in the energy and chemical industry Operate geothermal binary turbines on energy and chemical plant	2	8	B
17610	Operate pre-treatment systems for effluent water from energy and chemical plant	4	8	B
17611	Operate biological treatment systems for effluent water from energy and chemical plant	4	8	B
21454	Operate refrigeration equipment with energy and chemical plant Operate refrigeration equipment on energy and chemical plant	4	10	B
21455	Purge a system on energy and chemical plant	4	4	B
21456	Operate systems for boiler feedwater treatment	4	12	B
21457	Isolate and reinstate a section of energy or chemical plant Isolate and reinstate a section of energy and chemical plant	4	4	B

Id	Title	Level	Credit	Review Category
21458	Operate a steam turbine	4	14	B
21459	Demonstrate knowledge of pipework and fittings in the energy and chemical industry Demonstrate knowledge of pipework and fittings on energy and chemical plant	2	4	B
21460	Meet requirements of person responsible for an unattended boiler	3	8	B
21461	Demonstrate knowledge of the basic principles of steam generation and of combustion theory Demonstrate knowledge of the basic principles of steam generation and of combustion theory relating to boiler operation	2	6	B
21462	Demonstrate knowledge of the basic equipment and systems used for steam generation Demonstrate knowledge of the basic equipment and systems used for steam generation in boiler operation	2	8	B
21463	Operate and monitor a boiler up to 20 MW Perform boiler plant operations	2 3	6	B
21464	Demonstrate knowledge of basic thermodynamics and measurement for energy and chemical plant Demonstrate knowledge of basic thermodynamics and measurement relevant to energy and chemical plant	3	6	B
21465	Operate pumps on energy and chemical plant	4	8	B
21466	Operate compressors and fans on energy and chemical plant	4	8	B

Domain Safety and Legislation for Energy and Chemical Plant

Id	Title	Level	Credit	Review Category
3046	Operate energy and chemical plant fire safety equipment	3	5	B
3064	Control a chemical reaction in energy and chemical plant	4	3	B
21468	Demonstrate knowledge of energy and chemical plant pollutants and their control measures	2	5	B
21469	Operate energy and chemical plant personnel safety systems Identify, use, and monitor safety equipment in energy and chemical plant	2	5	B
21470	Identify boiler house chemicals and explain their safety procedures Identify boiler house chemicals and explain the required safety procedures	2	3	B

Subfield Energy and Chemical Plant

Domain Safety and Legislation for Energy and Chemical Plant
Subfield Occupational Health and Safety
Domain Occupational Health and Safety Practice

Id	Title	Level	Credit	Review Category
21467	Store and handle chemicals for energy and chemical plant Store and handle workplace chemicals	3	8	B