40606 Operate machinery in a resource recovery environment

Kaupae | Level	3
Whiwhinga | Credit	15
Whāinga | Purpose	This skill standard is intended for people who are already working in a resource recovery environment including resource recovery facilities, construction or demolition worksites. People credited with this skill standard will be able to operate and maintain machinery to process recoverable materials safely. They will also be able to identify and rectify common faults or problems associated with machinery operation. This skill standard aligns with the New Zealand Certificate in Resource Recovery (Level 3) with strands in Organic Materials Processing, Recovery and Recycling, and Metal Recycling [Ref: 2744].
Whakaakoranga me mātua oti | Pre-requisites	Learners/ākonga must have completed a workplace health and safety induction or demonstrate equivalent knowledge and skills.

Hua o te ako me Paearu aromatawai \| Learning outcomes and assessment criteria

Hua o te ako | Learning outcomes	**Paearu aromatawai |** Assessment criteria
1. Prepare to operate a machine in a resource recovery environment.	a. Describe the functions and components of machinery used for processing materials in the workplace.
	b. Assess risks and follow risk control measures for machinery used for processing materials.
	c. Demonstrate machine startup and shutdown procedures safely.
	d. Demonstrate machine emergency shutdown procedures.
2. Set up machinery for processing recoverable materials in a resource recovery environment.	a. Confirm all required components and/or equipment for processing materials are available.
	b. Set up machine to process recoverable material.
	c. Conduct a prestart check of machinery and equipment.

	d. Rectify or report any issues affecting quality or safety requirements.
3. Operate machinery used in a resource recovery environment.	a. Operate machinery safely.
	b. Assess input materials and reject any materials which do not comply with job requirements.
	c. Process materials to meet quality and safety requirements.
	d. Monitor operations to ensure that processed materials meet job and operating requirements.
	e. Maintain material throughput to meet processing schedules.
	f. Clean machinery, equipment, and work area after operations.
4. Apply troubleshooting techniques in a resource recovery environment.	a. Identify common machine faults and problems associated with processing recoverable materials.
	b. Apply troubleshooting techniques to rectify common faults and problems during machine operations.
5. Maintain machinery used in a resource recovery environment.	a. Undertake routine and operational maintenance of machinery.
	b. Report maintenance requirements to supervisor.

Pārongo aromatawai me te taumata paearu | Assessment information and grade criteria

Assessment specifications:

- Evidence must include safe operation of a minimum of two different types of machinery.
- Machinery applicable to this skill standard includes but is not limited to – baler, cable granulator, compactor, conveyor, eddy current, magnet, optical sorter, shredder, static shear or incline shear. Conveyor, magnet and eddy current are used in combination on a sorting line.
- Learners operating a digger operated incline shear must hold the appropriate licence and endorsement where required (e.g W or T endorsement, and Class 2 licence if machine is over 25 tonnes).
- Evidence presented for assessment against this skill standard must be consistent with safe working practices and be in accordance with applicable service information, workplace procedures and legislative requirements.

Definitions

Recoverable materials refer to materials that can be diverted from disposal for recycling, composting or re-use. This includes glass, fibre (paper, cardboard), plastic, metal, rubber tyres, textiles (carpet, wool, clothing), organic materials (food waste, green waste, biosolids, industrial organic waste), e-waste and mixed construction materials (timber, plasterboard, plastic strapping & ties, polystyrene, concrete).

Workplace procedures refer to organisation policies and procedures that are documented in memo, electronic, or manual format and available in the workplace. They may include but are not limited to – standard operating procedures, site specific procedures, site safety procedures, equipment operating procedures, quality assurance procedures, product quality specifications, manufacturer's requirements, references, approved codes of practice, housekeeping standards, environmental considerations, on-site briefings, supervisor's instructions, and procedures to comply with legislative and local body requirements relevant to the resource recovery industry.

Ngā momo whiwhinga | Grades available

Achieved.

Ihirangi waitohu | Indicative content

Workplace safety

- Correct use of Personal Protection Equipment.
- Safe work and exclusion zones.
- Housekeeping.
- Lock out/ tag out procedures.

Baler

- Job requirements including confirmation of quantities required, preparation of material, compression, strapping and recording.
- Feed requirements including consistency of supply and planned intervals.
- Operating specifications including compaction and contamination limit.
- Rectification of processing faults such as change in flow rates, blockage or empty binder.
- Maintaining operating specifications and rectification or reporting of any processing faults.
- Production, storage and labelling of bales to meet job requirements.
- Bale requirements including content, size, shape, compaction and strapping tension.
- Routine maintenance including baler wire threads and twisters.

Conveyor

- Components including conveyor belt, drive equipment, control box, cut-out switch, containers and lifting equipment.
- Prestart check of conveyor components - belt joints, belt condition, safety devices, handrails, belt scrapers, conveyor drive equipment, belt tracking, troughing and return rollers, drive couplings, and lubrication.
- Prestart check of isolating switches and emergency shutdown procedures to determine their working order.

- Prestart check of sorting equipment such as receptacle type, receptacle condition and personal protective equipment.
- Conveyor speed settings.
- Operations monitoring - process flow, tracking, build up, gear boxes, drive equipment, guides, chute wear, scrapers, roller lubrication, belt wear and damage, noise, and vibration.
- Operational maintenance - cleaning, lubrication, housekeeping, replacement of worn and damaged conveyor belts, adjustment of conveyor tension and safety guard maintenance.

Eddy current

- Principles of eddy current separation including magnetic fields.
- Identification of materials applicable to eddy current separation.
- Adjustment of settings to optimise quality of selection and separation of materials.

Magnet

- Magnet characteristics including electromagnetic force and magnetic field.
- Uses of magnets in resource recovery industry.
- Controlled pick up and let down of ferrous objects.
- Adjustment of settings to optimise quality of selection and separation of materials.
- General maintenance.

Compactor

- Components including hopper, compaction chamber, hydraulic system, drive system and control system.
- Prestart check including position of safety guards, hydraulic levels and inspection of surroundings.
- Adjustment of settings to achieve required compaction ratio.
- Routine maintenance including lubrication of moving parts and inspection of hydraulic systems.

Static shear

- Components including barriers or safety prongs, hydraulic ram, blades, bushes and bearings.
- Prestart check including hydraulic fluid level, alignment of blade adjusted as to requirements of product being processed.
- Processing metals including upgrading, removal of contaminants, maintaining optimal level of processing and material thickness.
- Routine maintenance such as greasing moving parts, checking oil levels, inspection of blades, and cleaning.

Incline shear (digger operated)

- Components including blades, hydraulic system, pipes, hoses, grease gun, operating service dashboard including lights and gauges, fuel system, and safety guards.

- Prestart check including greasing moving parts, checking fluid levels.
- Processing of materials according to production requirements and separation of contaminants.
- Routine maintenance such as workshop inspections, cleaning and changing blades.

Shredder

- Components including hopper, shredding chamber, drive system and control system.
- Prestart check including position of safety guards, hydraulic levels, visual inspection for damage and blade configuration.
- Operation of machinery according to conditions such as load capacity, material types, material conditions and contamination.
- Routine maintenance such as greasing moving parts, checking oil levels, inspection of blades, and cleaning.

Optical sorter

- Correct programme selection
- White balance calibration

Troubleshooting

- Trouble shooting techniques such as root cause analysis.

Rauemi | Resources

Legislation and best practice guidelines relevant to this skill standard include but are not limited to:

- Hazardous Substances and New Organisms Act 1996.
- Health and Safety at Work Act 2015.
- Resource Management Act 1991.
- Worksafe New Zealand. (current edition). Best Practice Guidelines, Safe Use of Machinery. Available from: https://www.worksafe.govt.nz/.

Any new, amended or replacement Acts, regulations, standards, codes of practice, guidelines, or authority requirements or conditions affecting this skill standard will take precedence for assessment purposes, pending review of this skill standard. Legislation can be accessed at: https://www.legislation.govt.nz.

Pārongo Whakaū Kounga | Quality assurance information

Ngā rōpū whakatau-paerewa | Standard Setting Body	Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council
Whakaritenga Rārangi Paetae Aromatawai | DASS classification	Service Sector > Resource Recovery > Resource Recovery Operations
Ko te tohutoro ki ngā Whakaritenga i te Whakamanatanga me te Whakaōritenga | CMR	0014

Hātepe | Process	**Putanga** | Version	**Rā whakaputa** | Review Date	**Rā whakamutunga mō te aromatawai** | Last date for assessment
Rēhitatanga | Registration	1	24 April 2025	N/A
Kōrero whakakapinga | Replacement information	N/A		
Rā arotake | Planned review date	31 December 2029		

Please contact Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council at qualifications@hangaarorau.nz to suggest changes to the content of this skill standard.