Unit code	AURETH017
Unit title	Work safely with hydrogen in the automotive industry
Application	This unit describes the skills and knowledge required to work safely in automotive industry workplaces with hydrogen fuel cell electric vehicles (FCEVs). FCEVs may be vehicles or marine vessels. It includes risk management, hydrogen gas leak detection and emergency response. The unit applies to individuals who work in the automotive industry. No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.
Pre-requisite unit	NA
Unit sector	Electrical Technical – Hybrid Vehicle and Battery Vehicle
Elements	**Performance criteria**
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Follow hydrogen-related workplace safety procedures	1.1 Identify and follow workplace procedures related to hydrogen safety in automotive industry workplaces
	1.2 Inspect workplace and identify and report unsafe situations and hazards related to hydrogen according to workplace procedures
	1.3 Use hydrogen gas detector according to manufacturer specifications to identify hydrogen gas leaks in the workplace
	1.4 Identify and follow workplace procedures and safety requirements for handling and storing hydrogen gas
2. Follow hydrogen-related workplace emergency procedures	2.1 Identify and follow workplace emergency procedures for hydrogen-related emergencies
	2.2 Communicate hydrogen-related emergency situations to first responders and coworkers
	2.3 Complete hydrogen-related incident documentation requirements according to workplace procedures
Foundation skills This section describes those language, literacy, numeracy and employment skills that are essential to performance	

Learning	▪ locate required sources of information.
Reading	▪ interpret workplace procedures ▪ interpret hydrogen-related safety signs and symbols.
Writing	▪ legibly and accurately fill out workplace safety documentation.
Oral communication	▪ inform personnel of hydrogen-related workplace hazards.
Numeracy	▪ take, interpret and record measurements on digital and analogue gauges, including pressure.
Self management	▪ identify and look after own safety.
Problem solving	▪ recognise when unsure of safety procedures and seek help.
Unit mapping information	No equivalent unit.
Links	Link to Companion Volume Implementation Guide.

Title	Assessment Requirements for *AURETH017 Work safely with hydrogen in the automotive industry*
Performance evidence	The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to: ▪ identify and report two hydrogen-related safety concerns ▪ participate in one hydrogen-related emergency evacuation.
Knowledge evidence	The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of: ▪ methods to locate and interpret information required to work safely with hydrogen in automotive industry workplaces, including information from: o Commonwealth and state/territory regulations o Australian standards relevant to working safely with hydrogen in automotive industry workplaces o Dangerous Goods (Storage and Handling) Regulations ▪ workplace health and safety (WHS) requirements relating to working safely with hydrogen in automotive industry workplaces, including: o Work Health and Safety Act and Regulations relevant to work safely with hydrogen in automotive industry workplaces o identifying hydrogen-related hazards and risks, including: ▪ flammability and explosion risk ▪ confined spaces ▪ invisible flame ▪ high-pressure storage ▪ hydrogen leaks ▪ asphyxiation risk ▪ frostbite and cold burns ▪ static charge ▪ electronic interference o minimising hydrogen-related risks, including: ▪ handheld hydrogen leak detection

	▪ ventilation systems ▪ pressure relief valves ▪ hydrogen-rated components, seals and fittings ▪ flame arrestors ▪ isolation areas to protect hydrogen FCEVs from ignition sources and unauthorised access ▪ high voltage isolation ▪ grounding hydrogen FCEVs ▪ anti-spark tools ▪ explosion-proof electrical equipment ▪ anti-static equipment ▪ insulated tools ▪ hydrogen designated isolation areas ▪ safety barriers ▪ compliant refuelling systems ▪ hydrogen purging procedures ▪ hydrogen warning signs ▪ personal protective equipment, including electrical safety gloves with 1000 volt rating and Australian standards rated high voltage insulating mat ▪ emergency shut-off valves ▪ hydrogen gas, including: o properties, including states of matter, flammability and dispersion o compressed gaseous hydrogen characteristics, storage and handling o sub-cooled liquid hydrogen characteristics, storage and handling o methods of production o utilisation in hydrogen FCEVs o safety data sheet (SDS) handling precautions

	▪ hydrogen gas transport and storage requirements, including: o hydrogen FCEV tank types o lines o sensors and monitoring o refuelling o labelling ▪ hydrogen gas leak detection in storage, transport and distribution systems, including: o operating safety valves o complying with hydrogen safety standards o performing regular checks o confined spaces and high-risk areas o flow of hydrogen gas in a hydrogen FCEV o flow of hydrogen gas in an automotive industry workplace ▪ hydrogen refuelling, including: o infrastructure o procedures o refuelling nozzles and communication systems o refuelling risks o refuelling procedures o leak detection o shut down procedures, for the refueller, fuel tanks and hydrogen FCEV o emergency shut down procedures ▪ emergency response procedures for hydrogen-related incidents, including: o leaks o fires o thermal runaways.
Assessment conditions	Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.

	Assessment must occur in a safe environment where the workplace or simulated workplace complies with: ▪ Commonwealth, state or territory work health and safety/ occupational health and safety legislation and regulations ▪ state or territory dangerous goods and hazardous chemicals legislation and regulations related to storage and handling. Assessment must include direct observation of tasks. Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to having followed safe work practices while working in an automotive industry workplace with hydrogen FCEVs, e.g. leak detection. Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application. The following resources must be made available: ▪ automotive industry workplace or simulated workplace suitable for hydrogen FCEV ▪ workplace procedures and instructions relating to safe work practices ▪ workplace safety and emergency evacuation procedures ▪ hazardous chemicals and dangerous goods information ▪ safety materials and equipment relevant to an automotive industry workplace with hydrogen FCEVs ▪ fire safety equipment ▪ handheld hydrogen gas detector ▪ documents for recording workplace safety, accidents and incidents. Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.
Links	Link to Companion Volume Implementation Guide.