MSA

Manufacturing Skills Australia

Process Manufacturing, Recreational Vehicles and Laboratory IRC

PMA Chemical, Hydrocarbons and Refining Training Package Business Case

30 November 2016

Manufacturing a skilled Australia

A. Administrative information

Name of IRC: Process Manufacturing, Recreational Vehicle and Laboratory IRC

Name of SSO: Manufacturing Skills Australia

This business case provides evidence of the need for updates to a number of components of the PMA Chemical, Hydrocarbons and Refining Training Package to address current industry trends and workforce needs in the chemical, hydrocarbons and refining sectors including:

1. Undertaking a review of the following PMA Chemical, Hydrocarbons and Refining Training Package qualifications:
    a. PMA30316 Certificate III in Process Plant Operations and PMA40116 Certificate IV in Process Plant Technology
    b. PMA50116 Diploma of Process Plant Technology and PMA60116 Advanced Diploma of Process Plant Technology
2. Developing new units of competency to support skills in drone technology/remote monitoring to align with contemporary work practices, technological advances and industry requirements

The proposed components comprise the following:

- four qualifications
- 290 units of competency
- one skill set

See the full list in Appendix A.

Description of scope of work is at Part C below.

B. Methodology for review

Stakeholder consultation

Following approval by the IRC, a targeted survey of stakeholders was conducted. This was also accompanied by a series of phone interviews and email conversations to provide industry intelligence on skills needs, workforce directions and industry trends for each project. A full list of all stakeholders contacted can be found in Appendix B.

Research undertaken in 2016 by the Resources Industry Training Council (RITC) in Western Australia into the suitability of the existing Diploma and Advanced Diploma of Process Plant Technology[1] was also considered in developing this business case.

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[1] Resources Industry Training Council, 2016, Diploma and Advanced Diploma of Process Plant Technology Suitability of Qualifications for Current and Future Industry Needs https://s3.amazonaws.com/wix-anyfile/KihKBx7yTNmRzyg2zoYx_160816%20-%20RITC%20Final%20Report%20-%20Diploma%20and%20Advanced%20Diploma%20of%20Process%20Plant%20Technology.pdf

C. Outcome of the review

Imperative for change

The chemical, hydrocarbons and refining industry is a diverse industry covering the production of chemicals, industrial gases and metals and petroleum refining. It is an important industry within Australia's valuable resources sector. It is global in nature with many of the major stakeholders being multinational companies who require a skilled workforce that is mobile and flexible, able to adapt to changing conditions - economic, environmental and business.

The industry is changing rapidly in response to changing global economic conditions. New technologies and methods of working, including the use of small cross-disciplinary teams, are being introduced to improve productivity and increase competitiveness in a global industry. The skill needs of workers are constantly changing to meet the demands of this new paradigm.

In the last five years, there has been unprecedented growth in the oil and gas sector of the industry with Australia predicted to become the world's largest gas producer by 2021[2]. The construction of new gas processing plants (trains) across Australia is almost complete and the industry is transitioning to the production phase. This will lead to increasing demand for skilled process workers and technologists in this important sector.

To take advantage of the economic potential of the industry, it needs an appropriately skilled workforce. Employers require workers with the qualifications and experience needed to meet business goals. This then demands that the qualifications provided through the national training system are fit for purpose and well regarded by the industry.

The qualifications within the PMA Training Package were developed almost 10 years ago and since then there have been significant changes within the industry with developments in technologies such as the use of drones (remote operated technologies) for the monitoring of wells and pipelines, increased reliance on 'big data' analytics using real-time feedback for maintenance and operational processes. Research undertaken for this business case has found that the current qualifications at Certificate III and IV level are no longer able to produce graduates with the skills required to meet industry needs.

The industry is increasingly needing Advanced Technicians and para-professionals. Research undertaken by the RITC, which involved extensive industry consultation into the value of the Diploma and Advanced Diploma found that these qualifications are not perceived to be of high-value to the industry; rather they are considered as "soft, generalist rather than business focused" (pg. 13). At these levels, workers are often in leadership or front-line management roles and the skills they need reflect these higher level roles. Among the skills identified by industry are:

- Project management
- Predictive analytics
- Automation technical skills
- Optimisation skills
- Modelling/communication of information using advanced technologies
- Team leadership skills, including managing diverse teams, change management, building trust

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[2] International Energy Agency, 2016, IEA sees major shifts in global gas trade over next five years, IEA, Brussels, 8 June, 2016

- Business skills, including budget preparation and analysis, business financial literacy, business planning
- Human resource management skills such as performance management, communication skills
- HSE skills in areas such as OHS legislation, process safety, risk management

There has been very poor take-up of the existing qualifications over the last five years because they are not considered fit-for-purpose by industry. The review of the four qualifications listed and the development of new units, especially in drone/remote operated technologies is required to restore the integrity and value of the qualifications and the VET sector for industry. The redevelopment of the Diploma and Applied Diploma will also provide clearer pathways to higher education and to higher roles within the industry.

Scope of work

To address these issues, and ensure the continued success and viability of the chemical, hydrocarbon and refining industry, the Process Manufacturing, Recreational Vehicles and Laboratory IRC, through this business case, proposes:

- Development of new units of competency/skill sets to address the skill needs of workers in the area of drone/remote operated technology
- Full review of the following four qualifications and related units of competency:
  - PMA30316 Certificate III in Process Plant Operations
  - PMA40116 Certificate IV in Process Plant Technology
  - PMA50116 Diploma of Process Plant Technology
  - PMA60116 Advanced Diploma of Process Plant Technology
- Investigation of suitable units for importation at AQF 5 and AQF 6 level to address the need for skills in:
  - Team leadership
  - Business management
  - HSE management
  - Project management
  - Business and optimisation systems
- Review existing units and/or develop new units to meet the skills needed to work effectively with new technologies, including:
  - Digital technologies
  - Data analytics
  - Remote operated technologies
  - Problem solving in a technological environment
  - Predictive analytics

D. Estimated impacts of proposed change

Impact of implementing the changes

Impact and benefits associated with changes proposed within this business case:

- Creation of industry defined and supported national training products
- New platforms for professional development to build sustained talent and productivity

improvements within the chemical, hydrocarbon and refining industry
- Creation of improved career pathways and workforce development opportunities
- Improved attraction and retention within the sector through the availability of a specialist skill set for drone/remote operated technology within the Chemical, Hydrocarbons and Refining Training Package aligned to specialist job roles
- Improved retention within the industry of talented leaders and managers to lead and manage inter-disciplinary teams
- Improved consistency and currency of skills for specialists in the area of drone technology
- Strengthened partnerships between industry and the vocational education and training sector

Impact of not implementing the changes

Impact and risk associated with no change:

- Sustained shortages of skills nationally in growing specialist occupations within the industry
- Inability of the chemical, hydrocarbons and refining industry to operate at globally competitive standards due to a lack of skills in key specialist occupations
- Increased recruitment costs and loss of productivity for employers as a result of failed recruitment efforts
- Potential loss of quality within the sector as a result of poorly/incorrectly skilled workers
- Continued lack of training and ongoing development opportunities for skill growth in a key industry area
- Inability of Australian resource companies to grow their talent internally using nationally recognised, portable qualifications

E. Outstanding issues

This business case addresses the need to review four qualifications within the PMA Chemical, Hydrocarbons and Refining Training Package. It does not address the review the Certificate II in Process Plant Operations which is heavily used in the industry.

The IRC recommends that the Certificate II in Process Plant Operations be included in the proposed work to ensure that it remains relevant to the industry. MSA will work with the IRC and the allocated SSO to ensure that this issue is included in future work.

F. Proposed approach and estimated timeframes for undertaking development work

Training package development work will follow the standard stages of: project scoping, technical development, validation, final draft, quality check, validation and endorsement.

The recommended time to complete the work is 18 months to the time of submission for endorsement.

G. Training product review status

Please see Appendix A.

H. IRC Signoff

This Business Case was approved by:

Samantha Read, Chair

Date: 28 November 2016

Manufacturing Skills Australia
Manufacturing Industry Skills Council

Appendix A

Schedule of Review of Training Products: 2016-17

SSO Name: Manufacturing Skills Australia

Contact details: Samantha Read, Chair

Date submitted: 28 November 2016

Training Package code	Training Package name	Qualification code	Qualification name	Unit code	Unit name	Skill Set code	Skill Set name	Review status	Change required
PMA	Chemical, Hydrocarbons and Refining	PMA30316	Certificate III in Process Plant Operations						3.5
		PMA40116	Certificate IV in Process Plant Technology						3.5
		PMA50116	Diploma of Process Plant Technology						3.5
		PMA60116	Advanced Diploma of Process Plant Technology						3.5
				FDFPH1001A	Follow work procedures to maintain Good Manufacturing Practice				3.5

					FDFPH2001A	Apply Good Manufacturing Practice procedures				3.5
					FDFPHGMP3A	Monitor the implementation of Good Manufacturing Practice procedures				3.5
					HLTAID003	Provide first aid				3.5
					MEM04001B	Operate melting furnaces				3.5
					MEM05012C	Perform routine manual metal arc welding				3.5
					MEM09002B	Interpret technical drawing				3.5
					MEM09003B	Prepare basic engineering drawing				3.5
					MEM11011B	Undertake manual handling				3.5
					MEM16005A	Operate as a team member to conduct manufacturing, engineering or related activities				3.5
					MEM18011C	Shut down and isolate machine/equipment				3.5
					MSL936001	Maintain quality system and continuous improvement processes within work/functional				3.5

						area			
					MSL952001	Collect routine site samples			3.5
					MSL954001	Obtain representative samples in accordance with a sampling plan			3.5
					MSL973001	Perform basic tests			3.5
					MSMBLIC001	License to operate a standard boiler			3.5
					MSMENV172	Identify and minimise environmental hazards			3.5
					MSMENV272	Participate in environmentally sustainable work practices			3.5
					MSMENV472	Implement and monitor environmentally sustainable work practices			3.5
					MSMENV672	Develop workplace policy and procedures for environmental sustainability			3.5
					MSMOPS100	Use equipment			3.5
					MSMOPS102	Perform tasks to support production			3.5
					MSMOPS200	Operate equipment			3.5

				MSMOPS212	Use organisation computers or data systems				3.5
				MSMOPS400	Optimise process/plant area				3.5
				MSMOPS401	Trial new process or product				3.5
				MSMOPS601	Design equipment and system modifications				3.5
				MSMPER200	Work in accordance with an issued permit				3.5
				MSMPER201	Monitor and control work permits				3.5
				MSMPER202	Observe permit work				3.5
				MSMPER205	Enter confined space				3.5
				MSMPER300	Issue work permits				3.5
				MSMPER400	Coordinate permit process				3.5
				MSMSUP100	Apply workplace context to own job				3.5
				MSMSUP101	Clean workplace or equipment				3.5
				MSMSUP102	Communicate in the workplace				3.5
				MSMSUP106	Work in a team				3.5

					MSMSUP200	Achieve work outcomes				3.5
					MSMSUP204	Pack products or materials				3.5
					MSMSUP205	Transfer loads				3.5
					MSMSUP210	Process and record information				3.5
					MSMSUP240	Undertake minor maintenance				3.5
					MSMSUP273	Handle goods				3.5
					MSMSUP280	Manage conflict at work				3.5
					MSMSUP291	Participate in continuous improvement				3.5
					MSMSUP292	Sample and test materials and product				3.5
					MSMSUP300	Identify and apply process improvements				3.5
					MSMSUP301	Apply HACCP to the workplace				3.5
					MSMSUP303	Identify equipment faults				3.5
					MSMSUP309	Maintain and organise workplace records				3.5
					MSMSUP310	Contribute to development of workplace documentation				3.5

				MSMSUP330	Develop and adjust a production schedule				3.5
				MSMSUP382	Provide coaching / mentoring in the workplace				3.5
				MSMSUP383	Facilitate a team				3.5
				MSMSUP390	Use structured problem-solving tools				3.5
				MSMSUP400	Develop and monitor quality systems				3.5
				MSMSUP404	Coordinate maintenance				3.5
				MSMSUP405	Identify problems in fluid power system				3.5
				MSMSUP406	Identify problems in electronic control systems				3.5
				MSMWHS100	Follow WHS procedures				3.5
				MSMWHS101	Follow WHS procedures				3.5
				MSMWHS110	Follow emergency response procedures				3.5
				MSMWHS200	Work safely				3.5
				MSMWHS201	Conduct hazard analysis				3.5
				MSMWHS205	Control minor incidents				3.5

				MSMWHS210	Undertake first response to non-fire incidents				3.5
				MSMWHS212	Undertake first response to fire incidents				3.5
				MSMWHS216	Operate breathing apparatus				3.5
				MSMWHS217	Gas test atmospheres				3.5
				MSMWHS218	Control the risks of falls				3.5
				MSMWHS300	Facilitate the implementation of WHS for a work group				3.5
				MSMWHS400	Contribute to WHS management system				3.5
				MSMWHS401	Assess risk				3.5
				MSMWHS503	Maintain WHS management system				3.5
				MSMWHS510	Manage risk				3.5
				MSMWHS601	Develop WHS management system				3.5
				MSS015002A	Develop strategies for more sustainable use of resources				3.5
				MSS402002A	Sustain process improvements				3.5

				MSS402030A	Apply cost factors to work practices				3.5
				MSS402031A	Interpret product costs in terms of customer requirements				3.5
				MSS402040A	Apply 5S procedures				3.5
				MSS402050A	Monitor process capability				3.5
				MSS402051A	Apply quality standards				3.5
				MSS402060A	Use planning software systems in operations				3.5
				MSS402080A	Undertake root cause analysis				3.5
				MSS402081A	Contribute to the application of a proactive maintenance strategy				3.5
				MSS403002A	Ensure process improvements are sustained				3.5
				MSS403011A	Facilitate implementation of competitive systems and practices				3.5
				MSS403013A	Lead team culture improvement				3.5
				MSS403030A	Improve cost factors in work practices				3.5

				MSS403040A	Facilitate and improve implementation of 5S				3.5
				MSS403041A	Facilitate breakthough improvements				3.5
				MSS403051A	Mistake proof an operational process				3.5
				MSS404050A	Undertake process capability improvements				3.5
				MSS404060A	Facilitate the use of planning software systems in a work area or team				3.5
				MSS404081A	Undertake proactive maintenance analyses				3.5
				MSS404082A	Assist in implementing a proactive maintenance strategy				3.5
				MSS405010A	Manage relationships with non-customer external organisations				3.5
				MSS405011A	Manage people relationships				3.5
				MSS405012A	Manage workplace learning				3.5
				MSS405030A	Optimise cost of a product or service				3.5
				MSS405031A	Undertake value analysis of product or process costs in terms of customer				3.5

						requirements			
					MSS405040A	Manage 5S system in an organisation			3.5
					MSS405041A	Implement improvement systems in an organisation			3.5
					MSS405050A	Determine and improve process capability			3.5
					MSS405052A	Apply statistics to operational processes			3.5
					MSS405060A	Develop the application of enterprise control systems in an organisation			3.5
					MSS405061A	Determine and establish information collection requirements and processes			3.5
					MSS405070A	Develop and manage sustainable energy practices			3.5
					MSS405081A	Develop a proactive maintenance strategy			3.5
					NWP357B	Monitor, operate and control reverse osmosis and nano- filtration processes			3.5
					PMAOMIR210	Control evacuation to muster point			3.5

				PMAOMIR301	Undertake initial rescue				3.5
				PMAOMIR302	Respond to a helideck incident				3.5
				PMAOMIR305	Operate panel during an emergency				3.5
				PMAOMIR317	Facilitate search and rescue operations				3.5
				PMAOMIR320	Manage incident response information				3.5
				PMAOMIR321	Manage communication systems during an incident				3.5
				PMAOMIR346	Assess and secure an incident site				3.5
				PMAOMIR346	Assess and secure an incident site				3.5
				PMAOMIR407	Audit incident preparedness and established response system				3.5
				PMAOMIR418	Coordinate incident response				3.5
				PMAOMIR424	Develop and maintain community relationships				3.5
				PMAOMIR430	Conduct and assess incident exercises				3.5
				PMAOMIR444	Develop incident				3.5

					containment tactics					
					PMAOMIR449	Monitor legal compliance obligations during incidents				3.5
					PMAOMIR512	Establish incident response preparedness and response systems				3.5
					PMAOMIR523	Manage corporate media requirements in a crisis				3.5
					PMAOMIR575	Coordinate welfare support activities in response to an incident				3.5
					PMAOMIR622	Build partnerships to improve incident response capacity				3.5
					PMAOMIR650	Manage a crisis				3.5
					PMAOPS101	Read dials and indicators				3.5
					PMAOPS105	Select and prepare materials				3.5
					PMAOPS201	Operate fluid flow equipment				3.5
					PMAOPS202	Operate fluid mixing equipment				3.5
					PMAOPS204	Select and use utilities and services				3.5

				PMAOPS205	Operate heat exchangers				3.5
				PMAOPS208	Operate chemical separation equipment				3.5
				PMAOPS210	Operate solids handling equipment				3.5
				PMAOPS211	Operate manufacturing extrusion systems				3.5
				PMAOPS213	Package product/material				3.5
				PMAOPS216	Operate local control system				3.5
				PMAOPS217	Operate wet milling equipment				3.5
				PMAOPS220	Monitor chemical reactions in the process				3.5
				PMAOPS221	Operate and monitor prime movers				3.5
				PMAOPS222	Operate and monitor pumping systems and equipment				3.5
				PMAOPS223	Operate and monitor valve systems				3.5
				PMAOPS224	Provide fluids for utilities and support				3.5
				PMAOPS226	Monitor and operate flare systems				3.5

				PMAOPS230	Monitor, operate and maintain pipeline stations and equipment				3.5
				PMAOPS231	Control gas odourisation				3.5
				PMAOPS232	Operate filtration equipment				3.5
				PMAOPS233	Monitor wells and gathering systems				3.5
				PMAOPS234	Monitor and operate low pressure compressors				3.5
				PMAOPS236	Monitor continuous process plant				3.5
				PMAOPS240	Store fluids in bulk				3.5
				PMAOPS241	Operate Joule-Thomson effect device				3.5
				PMAOPS242	Moor ships for transfer of bulk processed particulates or fluids				3.5
				PMAOPS246	Operate separation equipment				3.5
				PMAOPS247	Operate powered separation equipment				3.5
				PMAOPS260	Conduct screening operations				3.5
				PMAOPS261	Operate bulk solids loading equipment				3.5

				PMAOPS262	Operate digestion equipment				3.5
				PMAOPS263	Operate leaching equipment				3.5
				PMAOPS264	Operate solvent extraction equipment				3.5
				PMAOPS265	Operate magnetic/electrical separation equipment				3.5
				PMAOPS280	Interpret process plant schematics				3.5
				PMAOPS290	Operate a biotreater				3.5
				PMAOPS300	Operate a production unit				3.5
				PMAOPS301	Operate a distillation unit				3.5
				PMAOPS302	Operate reactors and reaction equipment				3.5
				PMAOPS303	Operate furnaces to induce reaction				3.5
				PMAOPS304	Operate and monitor compressor systems and equipment				3.5
				PMAOPS305	Operate process control systems				3.5
				PMAOPS307	Transfer bulk fluids into/out of storage facility				3.5

				PMAOPS308	Organise storage and logistics of general materials				3.5
				PMAOPS309	Operate solids handling/ storage equipment				3.5
				PMAOPS312	Undertake ship loading / unloading operations				3.5
				PMAOPS319	Adjust batch				3.5
				PMAOPS320	Conduct artificial lift				3.5
				PMAOPS321	Undertake well management				3.5
				PMAOPS323	Operate and monitor heating furnace				3.5
				PMAOPS324	Operate a gas turbine				3.5
				PMAOPS325	Generate electrical power				3.5
				PMAOPS326	Operate gas absorption unit				3.5
				PMAOPS327	Operate fixed bed adsorption unit				3.5
				PMAOPS329	Operate liquid extraction unit				3.5
				PMAOPS330	Communicate and monitor pipeline activities				3.5
				PMAOPS333	Operate wells and				3.5

					gathering systems				
				PMAOPS335	Conduct pipeline pigging				3.5
				PMAOPS340	Operate cryogenic processes				3.5
				PMAOPS350	Match and adjust colour				3.5
				PMAOPS360	Operate a metalliferous kiln/furnace				3.5
				PMAOPS361	Operate a smelting furnace				3.5
				PMAOPS362	Operate a blast furnace				3.5
				PMAOPS364	Operate an electrochemical process				3.5
				PMAOPS365	Operate pelletising equipment				3.5
				PMAOPS366	Operate sintering equipment				3.5
				PMAOPS390	Operate a biochemical process				3.5
				PMAOPS402	Respond to abnormal process situations				3.5
				PMAOPS405	Operate complex control systems				3.5
				PMAOPS410	Operate remote production facilities				3.5

				PMAOPS411	Manage plant shutdown and restart				3.5
				PMAOPS433	Manage wells and gathering systems				3.5
				PMAOPS434	Commission wells and gathering systems				3.5
				PMAOPS450	Solve colour problems				3.5
				PMAOPS460	Monitor and operate tailings management facilities				3.5
				PMAOPS500	Optimise production systems				3.5
				PMAOPS501	Provide operational expertise to a project team				3.5
				PMAOPS505	Control the process during abnormal situations				3.5
				PMAOPS511	Determine energy transfer loads				3.5
				PMAOPS512	Determine mass transfer loads				3.5
				PMAOPS520	Manage utilities				3.5
				PMAOPS521	Plan plant shutdown				3.5
				PMAOPS522	Coordinate plant shut down				3.5

				PMAOPS550	Develop a colour formulation				3.5
				PMAOPS560	Plan and design tailings management facilities				3.5
				PMAOPS600	Modify plant				3.5
				PMAOPS751	Apply physiochemical knowledge to select raw materials for surface coatings				3.5
				PMAOPS752	Develop a decorative coating				3.5
				PMAOPS753	Develop a non-decorative coating or ink				3.5
				PMAOPS755	Provide surface coatings application advice				3.5
				PMASMELT260	Form carbon anodes				3.5
				PMASMELT261	Bake carbon anodes				3.5
				PMASMELT262	Clean and strip anode rods				3.5
				PMASMELT263	Spray carbon anodes				3.5
				PMASMELT264	Start up reduction cells				3.5
				PMASMELT265	Operate reduction cells				3.5
				PMASMELT266	Deliver molten metal				3.5

				PMASMELT267	Cast ingots				3.5
				PMASMELT268	Operate vertical direct casting process				3.5
				PMASMELT269	Operate cell tending equipment				3.5
				PMASMELT270	Supply product from reduction cells				3.5
				PMASUP236	Operate vehicles in the field				3.5
				PMASUP237	Undertake crane, dogging and load transfer operations				3.5
				PMASUP241	Maintain pipeline easements				3.5
				PMASUP242	Monitor pipeline civil works				3.5
				PMASUP243	Monitor and maintain pipeline coatings				3.5
				PMASUP244	Prepare and isolate plant				3.5
				PMASUP245	Break and make flanged joints using hand tools				3.5
				PMASUP246	Disconnect and reconnect non-flared tube fitting joints				3.5
				PMASUP305	Operate offshore cranes				3.5

				PMASUP311	Operate communications hub				3.5
				PMASUP341	Monitor and maintain instrument and control systems				3.5
				PMASUP342	Monitor and maintain electrical systems				3.5
				PMASUP343	Monitor and maintain cathodic protection systems				3.5
				PMASUP344	Monitor and control repairs and modifications on operational pipe				3.5
				PMASUP345	Monitor vibration				3.5
				PMASUP346	Control corrosion				3.5
				PMASUP347	Undertake corrosion inspection on process plant				3.5
				PMASUP410	Develop plant documentation				3.5
				PMASUP420	Minimise environmental impact of process				3.5
				PMASUP432	Coordinate pipeline projects				3.5
				PMASUP440	Commission/recommission plant				3.5

				PMASUP441	Decommission plant				3.5
				PMASUP444	Plan plant preparation and isolation				3.5
				PMASUP445	Participate in HAZOP studies				3.5
				PMASUP520	Review procedures to minimise environmental impact of process				3.5
				PMASUP540	Analyse equipment performance				3.5
				PMASUP620	Manage environmental management system				3.5
				PMAWHS211	Prepare equipment for emergency response				3.5
				PMAWHS213	Undertake fire control and emergency rescue				3.5
				PMAWHS214	Undertake helicopter safety and escape				3.5
				PMAWHS215	Apply offshore facility abandonment and sea survival procedures				3.5
				PMAWHS221	Maintain first aid resources and records				3.5
				PMAWHS310	Investigate incidents				3.5
				PMAWHS311	Lead emergency teams				3.5

				PMAWHS312	Command the operation of survival craft				3.5
				PMAWHS320	Provide advanced first aid response				3.5
				PMAWHS321	Provide first aid response in remote and/or isolated area				3.5
				PMAWHS420	Develop first aid procedures and manage resources				3.5
				PMAWHS502	Contribute to safety case				3.5
				PMAWHS511	Manage emergency incidents				3.5
				PMC552002C	Operate equipment to blend/mix materials				3.5
				PMC552003C	Operate grinding equipment				3.5
				PMC552008B	Operate crushing equipment				3.5
				PMC562070B	Move materials				3.5
				PSPGEN015	Work effectively with diversity				3.5
				PSPMGT003	Manage change				3.5
				PSPMGT004	Manage diversity				3.5

				TAEASS301	Contribute to assessment				3.5
				TAEASS401	Plan assessment activities and processes				3.5
				TAEASS402	Assess competence				3.5
				TAEASS403	Participate in assessment validation				3.5
				TAEASS502	Design and develop assessment tools				3.5
				TAEDEL301	Provide work skill instruction				3.5
				TLID2010	Operate a forklift				3.5
				UEPOPL001A	Licence to operate a steam turbine				3.5
				UEPOPS319B	Operate and monitor gas production plant				3.5
							Using, monitoring and maintaining remotely operated technologies		new
				Total qualifications		4			
				Total Units of Competency		290			

Total Skill Sets	1			

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Appendix B

Chemical, Hydrocarbons and Refining stakeholder list	
Name	**Organisation**
Shane Lumley	Origin
Mike Slavin	ACEPT
Donna Playford	TAFE QUEENSLAND SKILLSTECH
Brett Woods	Santos
Kevin Hummel	TaPS
Michael Nelson	South Metropolitan TAFE (WA) - ACEPT
Rob Ries	Shell/QGC
Jamie Mackaway	RITC
Mike Banfield	Woodside
Jamie Huthwaite	Woodside Energy Ltd
Lee Carter	Department of Education and Training VIC