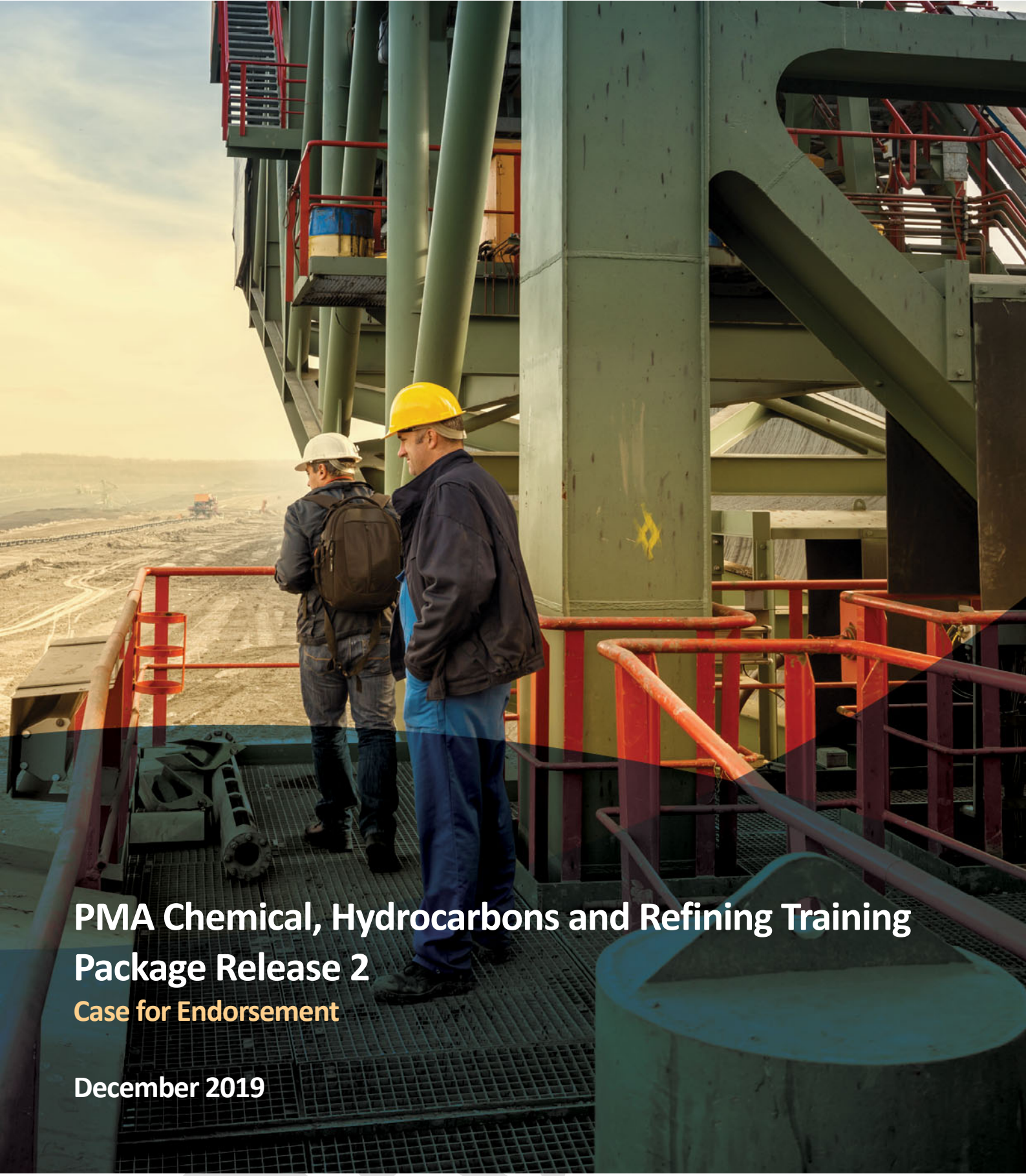

PMA Chemical, Hydrocarbons and Refining Training Package Release 2

Case for Endorsement

December 2019

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Prepared on behalf of the Process Manufacturing, Recreational Vehicles and Laboratory IRC for the Australian Industry and Skills Committee (AISC)

PMA Chemicals, Hydrocarbons and Refining Training Package

Case for Endorsement December 2019 – Activity Order IBSA/TPD/2016-2017/007

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IBSA
Innovation & Business Skills Australia

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A. Administrative details of the Case for Endorsement

The Process Manufacturing, Recreational Vehicles and Laboratory Industry Reference Committee (IRC) is presenting this Case for Endorsement.

IBSA Manufacturing, a Skills Service Organisation (SSO), is submitting this Case for Endorsement on behalf of the Process Manufacturing, Recreational Vehicles and Laboratory IRC.

This Case for Endorsement responds to Activity Order IBSA/TPD/2016-2017/007, executed in February 2017. In some cases, consultations and IRC decisions led to adjustments in the scope of work. These are detailed in Appendix A and at relevant places in this Case for Endorsement. The following provides a summary of these extensions and variations:

15 June 2018:	Initial Project Completion due date.
15 September 2018:	Variation for extension granted to align with LNG Framework project.
30 September 2018:	Variation for extension granted due to delay in finalising LNG Framework project.
19 June 2019:	Variation granted to split project into *Stage 1* and *Stage 2* and extend deadlines.
31 December 2019:	*Stage 1* Project Completion Due Date. This includes review and update of 27 existing PMA-coded units and development of 5 new units.
Dates to be confirmed:	*Stage 2* Project Completion Date. This includes future work to revise Certificate III in Process Plant Operations and develop up to 17 new units.

B. Description of work and request for approval

Draft components for endorsement

This submission covers Case for Endorsement for the PMA Chemical, Hydrocarbons and Refining Training Package Release 2.0. In summary, the following components are submitted for endorsement:

- **Thirty-two (32) units of competency:**
  - twenty-seven (27) revised units
  - five (5) new units.

See Appendix B for units of competency submitted for endorsement.

Non-endorsable components

- **Three (3) qualifications** will be updated to reflect new unit codes and titles:
  - PMA20116 Certificate II in Process Plant Operations
  - PMA30116 Certificate III in Process Plant Operations
  - PMA40116 Certificate IV in Process Plant Technology.

- **One unit of competency:**
  - PMAWHS213 Undertake fire control and emergency rescue

- **Four (4) skill sets** will be updated to reflect new unit codes and titles:

- PMASS00014 Pipeline Gas Transmission
- PMASS00018 Emergency centre team
- PMASS00020 Incident response commander
- PMASS00021 Incident response team leader.

Summary of work, changes and industry benefits

The primary focus has been to update the Certificate III in Process Plant Operations to reflect current industry needs by reviewing and updating existing content, and developing new content. Priorities for industry as expressed in the Case for Change related to the need for training package content that ensures:

- revised components match industry requirements and maximise the training outcomes for the sector
- the PMA Training Package continues to be supported by industry
- new components focus on critical skills gaps.

Alongside this objective, the work has involved a range of changes to support improved compliance with the *Standards for Training Packages 2012,* including the COAG Industry Skills Council (CISC) reforms to training packages. Opportunities to respond to CISC reforms were proactively identified and tested through consultation. This resulted in both the removal of repetitive, ambiguous and obsolete content and the clarification of implementation and industry requirements.

Units of competency

The following changes specifically reflect industry needs:

- Five (5) new units of competency address skills and knowledge gaps and were developed with extensive industry involvement:
  - PMAOPS344 Operate and troubleshoot flare systems
  - PMAOPS345 Operate and troubleshoot gas treatment process
  - PMAOPS346 Operate and troubleshoot liquefaction process
  - PMAOPS347 Create and conduct isolations in the workplace
  - PMAOPS348 Operate safety, protection and shutdown systems
- Changes to 27 existing units of competency to ensure units are up-to-date and reflect current industry requirements and CISC reforms. This includes:
  - improved clarity on industry's expectations and requirements for assessment
  - clarification of industry's current procedural requirements and terminology
  - standardisation across units of industry requirements for equipment operation and troubleshooting
  - Foundation Skills added to clarify industry requirements
  - reduction of duplication and other changes to avoid repetition of the same information in different parts of the units
  - ensuring the Performance Evidence specifies volume and frequency that provides the evidence needed to show competency
  - removal of the Range of Conditions, where most content did not meet the requirement for this field
  - removal of items that are for guidance only
  - streamlining Assessment Conditions.

Qualifications

The following changes have occurred:

- New PMA units have been added to the electives of PMA30116 Certificate III in Process Plant Operations
- Elective units have been updated to reflect new unit codes and titles in PMA20116 Certificate II in Process Plant Operations, PMA30116 Certificate III in Process Plant Operations and PMA40116 Certificate IV in Process Plant Technology.

C. Evidence of industry support

Written evidence of support

A fully constituted IRC approved the draft components for submission to the Australian Industry and Skills Committee (AISC) for endorsement. A letter of support from the IRC Chair appears as Appendix C**.**

Project methodology, research and consultation

The original scope of work approved by the AISC identified the following qualifications for review:

- PMA30116 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.

This included the review of 81 existing units of competency.

At the time of this project commencing, the liquified natural gas (LNG) industry had commissioned a job role analysis of Certificate III and IV level workers in the LNG sector, with the intention of developing a framework to ensure that future training would meet industry needs. This work resulted in the LNG Framework, which shows the alignment of existing and proposed new units of competency with future job roles. Industry determined that any approval or acceptance of training package development work hinged on its alignment with the LNG Framework.

Although the LNG sector is the predominate users of the PMA Chemicals, Hydrocarbons and Refining Training Package, it is not the only one; industry stakeholders in the coal seam gas (CSG), refining and chemicals sectors also use the PMA Chemicals, Hydrocarbons and Refining Training Package. Therefore, all stakeholders were engaged throughout this training package development and review process. Specifically, IBSA undertook targeted consultation and surveyed each of the PMA sectors to confirm which units of competency each sector used, and which were priorities for review to ensure that their needs were not overshadowed by the focus on the LNG Framework.

IBSA reviewed the LNG Framework and feedback from other sectors to determine current industry issues and priorities, and to identify key areas for the review and development of training package components.

This project focused on units associated with Certificate III in Process Plant Operations only, as this qualification represented the majority of VET-trained workers in industry. Units of competency were reviewed to meet current- and best-practice expectations of industry. Aligning the training package

development work with the outcomes of the LNG Framework ensures that new units will focus on critical skills required by industry.

Review work and consultation identified that industry also required a restructure of the Certificate III in Process Plant Operations to integrate a number of specialisations into the qualification. Although attempts were made to draft the specialisations, it became clear that the specialisations would require the development of an estimated further 17 new units of competency to address the identified skill gaps. These new units of competency were considered through the WALNG Jobs Taskforce. This taskforce was established in 2019 by the Government of Western Australia to establish the state as an LNG hub, with both industry and government working collaboratively to maximise the benefits that flow from the local LNG industry. To allow sufficient time for this development work to be undertaken with industry support, IBSA sought and was granted a project variation to take a staged approach to the work.

This meant that the work covered by the current Activity Order was split into 2 stages. This, the first stage, contains a reduced number of units in line with the development work completed to date and has been submitted to the AISC for consideration under this Case for Endorsement. The remaining work will progress as Stage 2.

Stage 1:

- Review and update 27 existing PMA units, and develop 5 new units.
    - Based on an updated set of priorities, identified in the LNG Framework and put forward by industry, the 5 units identified for development were changed. This followed feedback, supported by the Technical Advisory Committee (TAC) and IRC, that the focus of the proposed 5 new units of competency on drone technology/remote monitoring was a marginal imperative.
- Update the Certificate III in Process Plant Operations to include the 5 new units of competency in the elective bank.
- Respond to issues raised throughout the consultation processes by focusing on the foundation and technical skills required to work safely while operating and troubleshooting plant and equipment, and responding to abnormal situations and incidents in the workplace.

Stage 2

- Develop remaining new units of competency (up to 17) identified in the LNG Framework.
- Review the Certificate III in Process Plant Operations and develop named specialisations.

Stage 2 has commenced and is scheduled to be completed in 2020.

Technical Advisory Committee

A Technical Advisory Committee (TAC) was established to provide specific subject matter advice and technical expertise for the development and review of the training package components. The TAC was made up of both industry – representing the broad range of users including LNG, CSG, chemicals and refining – and RTO representatives. The organisations represented on the TAC represented a significant portion of industry stakeholders using the PMA Chemicals, Hydrocarbons and Refining Training Package.

Significant effort was also made with ExxonMobil and Coogee Chemicals to nominate a representative for the TAC but this did not eventuate.

TAC members were actively engaged throughout the project and met several times in person and by teleconference to discuss draft documents, consider issues presented through public consultation and to provide expert advice. Five meetings were held as follows:

- 29 August 2017 (Perth)
- 18 February 2019 (Perth)
- 16 April 2019 (teleconference)
- 30 July 2019 (Perth)
- 9 October 2019 (Perth).

A list of TAC members appears as Appendix D**.**

Public consultation

Details about the project were made available on the IBSA Manufacturing website at https://ibsa.org.au/consultation-project/chemical-hydrocarbons-refining-2017-project/ for the life of the project. There were two rounds of public consultation where draft components were available for review and comment via the IBSA Manufacturing website. More than 760 stakeholders were alerted to the availability of the draft content for review and the opportunity to provide feedback.

During the consultation period the project web page had:

- 114 discrete page views during Round 1 public consultation
- 125 discrete page views during Round 2 public consultation.

Feedback received during public consultations was tabled in the Issues Register and considered by the TAC.

Specific issues addressed through consultation

During the project, the following key issues were raised and addressed in consultation with the TAC and the IRC:

Issue	How addressed by industry
Project Timelines	• As detailed in this Case for Endorsement, variations and extensions were sought to align this project with other projects and work being undertaken by industry that impacted development and support for the PMA Training Package. This resulted in a staged approach of Stage 1 and Stage 2 to meet project deliverables and industry requirements.
Industry shift in focus and priorities	• Industry prioritised Certificate III and associated existing and new units as priority. Therefore, other qualifications and units previously identified as priority have been put on hold and removed from this project.
Certificate III not fit for purpose	• Certificate III was examined in the context of aligning with the LNG Framework and a proposed qualification was drafted. It became clear that the development of the

Issue	How addressed by industry
	Certificate III to align with industry requirements required the development of up to 17 new units. • Specialisations were examined as per the LNG Framework recommendations. However, these would need to be developed concurrent with all new units being developed in Stage 2. Therefore, in Stage 1, Certificate III was only updated in the context of adding 5 new units as electives and updating codes. • 5 new units developed in Stage 1 but up to 17 more units are required in order to address gaps identified in LNG Framework and by industry. These will be developed as part of Stage 2 of this project. • Certificate III will be reviewed to include all new units and named specialisations in Stage 2.
Confusion regarding units and how they related to the job roles	• Industry provided clarification of job role requirements, it was determined that **Certificate II** workers were required to '*operate equipment under supervision*'; **Certificate III** workers were autonomous and required to '*operate and troubleshoot'* equipment and **Certificate IV** workers were required to '*operate and optimise'* equipment. • Relevant PMAOPS3XX units were renamed 'operate and troubleshoot'. • Processes and requirements for troubleshooting equipment were clarified by industry and relevant units revised.
The need for consistent processes for operating and troubleshooting equipment	• 27 units were categorised into either equipment and non-equipment units. • Equipment units generally had the same procedural and knowledge requirements for operating and troubleshooting the equipment. Non-equipment units, while still relating to equipment in some cases, were units that had additional or different requirements specific to them and did not follow the same procedures for operation and troubleshooting. • Industry provided direction on ensuring that equipment units generally had a consistent approach to operating, shutting down and starting up process systems and dealing with abnormal situations.
The need for consistency of industry terminology.	Terminology was standardised across revised and new units, including, but not limited to: • abnormal situations • process system • isolation/de-isolation
Performance evidence inconsistent and inappropriate. It was often a repeat of the Performance Criteria or was introducing new skill requirements not listed in the	Industry provided clarification on performance evidence requirements. Industry advised that a learner would be required to successfully demonstrate a task twice in separate work contexts in order to be deemed competent. It was also noted that it would not be possible to mandate what those

Issue	How addressed by industry
Performance Criteria. This is not the intent of this field.	separate contexts would be because PMA units needed to continue to be able to be applied across different sectors. Mandating performance-evidence contexts would impinge on industry's ability to work with training providers and provide advice on current priorities and contexts for assessment. Therefore, Performance Evidence was updated to: "*at least 2 times, each in a separate work context*". This is consistent across all units and industry provided clarification around expectations for assessment delivery in separate work contexts, as outlined in the Companion Volume Implementation Guide and also later in this Case for Endorsement.
Knowledge Evidence	Industry reconfirmed that the requirements were appropriate in the units of competency and they needed to be contextualised across different sectors; if the requirements were too specific some sectors would not be able to apply Knowledge Evidence requirements. Industry also emphasised the need for RTOs to engage with industry to assist in providing clarification of requirements and contexts.
Clearer Foundation Skills	Generally, Foundation Skills were made explicit in the Performance Criteria. However, industry wanted to emphasise their importance in the Foundation Skills field, irrespective of whether or not the Foundation Skills were already explicit in the Performance Criteria. Industry felt that this would ensure that they are not overlooked and promote the best outcomes for learners.
Some unit requirements exceeded role expectation of Certificate III workers.	Role requirements for Certificate III workers were clarified within units and industry provided guidance on the removal of requirements exceeding role.
Assessment Conditions	There was a significant amount of guidance/superfluous information in the Assessment Conditions. This has now been reduced to focus on the key conditions that must be in place for assessment. Industry advised that most units could be assessed in the workplace or simulated environment. Some situations may not occur often in the workplace and would need to be simulated. For example, some equipment is designed to run consistently for years without being turned off.

Issue	How addressed by industry
	In this case, assessing the shutting down of this equipment would need to be simulated. Units coded PMAOMIR relate to emergency situations. Industry advised that these units need to be assessed in simulation for safety reasons.
Units coded PMAWHS and HLTAID	Industry advised the following units of competency replacements were required for the Certificate III: • *HLTAID006 Provide advanced first aid (pre-requisite HLTAID003 Provide First Aid)* has replaced *PMAWHS320 Provide advanced first aid response* • *HLTAID005 Provide first aid in remote situations (pre-requisite HLTAID003 Provide first aid)* has replaced *PMAWHS321 Provide first aid response in remote and/or isolated areas*
PMAWHS213 Undertake fire control and emergency rescue requires an IRC upgrade to provide clarification around assessment	Although not included in the original project scope, feedback on this unit identified there was misalignment between intent and implementation. Industry agreed to make minor IRC upgrades to improve consistency in implementation.

Whilst undertaking this work, IBSA Manufacturing undertook a continuous improvement approach to ensure alignment of the training package with training package development best practice. This included:

- Ensuring units aligned with the *Standards for Training Packages* 2012 template, including updating units to remove 'Range of Conditions' and revising Assessment Requirements
- Reviewing unit prerequisites throughout the project and having these assessed for appropriateness by stakeholders.

Evidence of broader engagement

In addition to the extensive involvement of TAC members, a range of other stakeholders provided expert input to the project. A list of these stakeholders appears in Appendix E.

All feedback was considered, and competing views were dealt with through consultation. The outcomes were approved in IRC meetings. There are no outstanding issues from Stage 1 development.

Evidence of engagement with State and Territory Training Authorities

IBSA Manufacturing has actively engaged with all State Training Authorities (STAs) throughout the project: providing an initial briefing, maintaining open dialogue and requesting feedback on Draft 1 and Draft 2/Validation draft components. At the conclusion of the project, STAs were provided a further opportunity for review and feedback, as provisioned for in the *Training Package Development and Endorsement Process Policy*. No objections were noted, and support was received from the STAs of New South Wales, Queensland, Northern Territory, Victoria, Western Australia, and South Australia.

Appendix F provides list of all state and territory stakeholders consulted during the project.

Reports by exception

There are no reports by exception.

D. Industry expectations about training delivery

Training delivery

The Companion Volume Implementation Guide, Release 2.0 includes advice about industry's expectations of training delivery: duration of training, delivery modes and pathways, work-based learning strategies, assessment and information about learner characteristics.

As no qualifications are being submitted for endorsement there will be no changes to the expected length of delivery. Currently, the Certificate III in Process Plant Operations can be delivered over a period of 1–2 years. These expectations are in line with the Australian Qualifications (AQF) parameters. However, this will be re-examined as part of Stage 2. AQF alignment will also be reconsidered in Stage 2 when packaging rules are revised and specialisations considered.

Stakeholders also agree that all learners must have access to a real or simulated workplace environment to practise skills development and for assessment. Assessors must ensure there is variance in assessment conditions when assessments are undertaken as directed in the Performance Evidence: 'at least twice, each in a separate work context'.

This will apply to both workplace and non-workplace assessments, be they in simulated conditions or real.

Examples of factors that can cause variability include, but are not limited to:

- weather conditions
- environmental factors
- time of day assessments are undertaken
- underpinning causal event
- physical location
- plant/equipment utilised.

Furthermore, industry agreed that in some instances simulated assessment is appropriate as the opportunity to demonstrate performance in the workplace may be uncommon, or is related to emergency situations.

Whilst Foundation Skills are generally explicit within the Performance Criteria of the revised units, key Foundation Skills have been listed in the Foundation Skills field. This was done under the direction of industry, which wanted to reiterate the importance of workers having these skills and ensuring that training providers could clearly identify key requirements.

Industry also confirmed the approach to Knowledge Evidence. Some requirements have been purposely broadened to provide flexibility and ensure they are suitable to be contextualised to industry requirements. It was confirmed that the use of more prescriptive or refined knowledge requirements would mean that the units could not be contextualised by all industry sectors that use them.

Furthermore, some Knowledge Evidence has been standardised across units and deliberately repeated to allow for reinforcement of process requirements in the workplace. This was intentional as historically there have been inconsistencies across the training package in relation to processes, procedures and terminology. This has been clarified for training providers to contribute to more consistent outcomes for learners. It also allows for easier identification of opportunities for holistic assessment.

Industry highlighted the importance of training providers consulting with employers to ensure industry requirements are addressed. Industry has raised its ongoing problems resulting from the variability of learner outcomes. This includes not just the lack of sufficient skills and knowledge in learners, but also the poor selection of appropriate units in terms of alignment with current job role requirements. This is a major contributor to the requirement that Stage 2 of this project addresses the need for a reduction of unnecessary elective units and the addition of specialisations in the Certificate III to ensure specific sector requirements are selected.

Delivery as an apprenticeship/traineeship

No qualifications are being submitted for endorsement.

Credit arrangement

No qualifications are being submitted for endorsement. Appendix G represents existing credit arrangements for those qualifications referenced in this Case for Endorsement.

E. Implementation of the new training packages

Occupation and licensing requirements

Units included in this submission include either of the following statements:

- No licensing or certification requirements exist at the time of publication. Relevant legislation, industry standards and codes of practice within Australia must be applied.
- Some jurisdictions may require the holder of this unit to be licensed or certified and users should check with the relevant authorities. Relevant legislation, industry standards and codes of practice within Australia must be applied.

It is noted that training providers must consult with industry to ensure that current requirements are met.

Where the requirement to meet *Australian/New Zealand Standards* is particularly relevant, it is clearly stated in training package components.

Implementation issues and management strategy

Five new PMA-coded units of competency have been added to the electives of the Certificate III in Process Plant Operations to address knowledge and skills requirements in operating and troubleshooting flare, gas treatment and liquefaction processes; creating and conducting isolations and operating safety, protection and shutdown systems.

Twenty-seven (27) existing PMA-coded units of competency have been revised and superseded by equivalent units.

RTOs will need to review their Training and Assessment Strategy (TAS) documentation to take the revised and new units into consideration.

Code changes to all units will result in those code changes needing to be reflected in 3 qualifications in the PMA Chemical, Hydrocarbons and Refining Training Package.

Equivalence

The TAC and the IRC have determined that the 27 revised units remain equivalent to the respective previous unit releases. Although content has been strengthened to provide clarity on industry requirements, the vocational outcome of the units of competency remains equivalent.

Prerequisites

There are no changes to prerequisite requirements for existing units.

The TAC considered the need for prerequisites for the new units but used them sparingly. Prerequisites were considered in the context of avoiding the development of new units that duplicated tasks from existing units and also in the context of cross-sector applicability. Prerequisite requirements for new units were determined as follows:

UNIT CODE	UNIT NAME	PREREQUISITE
PMAOPS347	Create and conduct isolations in the workplace	PMASUP244 Prepare and isolate plant

F. Quality assurance reports

Independent quality report

All components have been quality-assured by a Training Package Quality Assurance Panel member and the independent quality report is included as Appendix H.

The Companion Volume Implementation Guide has been quality-assured through the IBSA Manufacturing internal process, and through the independent quality assurance process. It is available with this submission and will be available on the VETNet website at: https://vetnet.education.gov.au on endorsement.

Declaration

IBSA Manufacturing, the SSO for the Process Manufacturing, Recreational Vehicles and Laboratory IRC, declares that the proposed training package components meet the requirements of the *Standards for Training Packages 2012, Training Package Products Policy* and *Training Package Development and Endorsement Process Policy*.

Companion Volume Implementation Guide

IBSA Manufacturing, the SSO for the Process Manufacturing, Recreational Vehicles and Laboratory IRC , confirms that the Companion Volume Implementation Guide is available and has been quality-assured.

Statement of evidence against the Training Package Quality Principles

Training Package Quality Principles	Evidenced by:

1. Reflect identified workforce outcomes	Changes made demonstrate a clear link back to relevant AISC decisions in commissioning the work; the IRC Skills Forecast and Proposed Schedule of Work; the National Review Schedule; and the Case for Change (please see Appendix A):
	• Twenty-seven (27) revised units of competency:
	  • Some titles updated to better reflect task
	  • Language updated to reflect current tasks and technology in process plant operations
	  • Foundation Skills information added to units to clarify task requirements
	  • Elements and Performance Criteria changed to clarify job tasks
	  • Performance Evidence updated to clarify outcomes
	  • Knowledge Evidence updated to reflect current requirements and align to task
	  • Assessment Conditions updated to focus on the key conditions that must be in place for assessment
	  • Range of Conditions removed(information did not meet the intent of the *Standards for Training Packages 2012*)
	• Five (5) new units of competency developed to address the knowledge and skills requirements for operating and troubleshooting flare, gas treatment and liquefaction processes; creating and conducting isolations; and operating safety, protection and shutdown systems.
	• Qualification updated to include the new components listed in Section B to better align with industry outcomes.
	• Training package components are compliant with *Standards for Training Packages 2012*, *Training Package Products Policy* and *Training Package Development and Endorsement Process Policy*, as evidenced by the Quality Assurance report included at Appendix H
	• Open and inclusive consultation and validation commensurate with scope and impact has been conducted, as described in this Case for Endorsement.

2. Support portability of skills and competencies including reflecting licensing and regulatory requirements	• Packaging rules, qualifications framework, and pathways support movement within and across sectors, as described in the PMA Companion Volume Implementation Guide, Release 2.0 • Five (5) new units that respond to industry needs. These units have been added as electives to the Certificate III in Process Plant Operations. • No licensing or certification requirements exist at the time of publication.
3. Reflect national agreement about the core transferable skills and core job-specific skills required for job	• Active engagement across industry has been sought to achieve a national consensus about the advice being provided to the AISC, as described in this Case for Endorsement • Best use of cross-industry and work and participation bank units will be considered when the qualification is reviewed in Stage 2 of the project. The qualification currently incorporates elective units from

Training Package Quality Principles	Evidenced by:
roles as identified by industry	FBP Food Beverages and Pharmaceuticals, HLT Health Training Package, MEM Manufacturing and Engineering, MSM Manufacturing, MSS Sustainability, PSP Public Sector Training Package, TAE Training and Education Training Package, TLI Transport and Logistics Training Package, UEP Electricity Supply Industry - Generation Sector Training Package
4. Be flexible to meet the diversity of individual and employer needs, including the capacity to adapt to changing job roles and workplaces	• Flexible qualifications provided that enable application in different contexts, evidenced by increased flexibility in packaging rules of qualifications • Multiple entry and exit points provided, as described in the PMA Companion Volume Implementation Guide, Release 2.0. • Prerequisite units of competency have been reviewed and no additional prerequisites added to existing units.
5. Facilitate recognition of an individual's skills and knowledge and support movement between the school, vocational education and higher education sectors	• Pathways provided from entry and preparatory level as appropriate to facilitate movement between schools and VET, from entry level into work, and between VET and higher education qualifications**,** as described in the PMA Companion Volume Implementation Guide, Release 2.0.
6. Support interpretation by training providers and others through the use of simple, concise language and clear articulation of assessment requirements	• Industry advice about delivery provided via the PMA Companion Volume Implementation Guide, Release 2.0 which is ready for publication at the same time as the training package. • Units of competency and their associated assessment requirements revised and updated to ensure clarity and to ensure consistent breadth and depth • Components are compliant with the TGA National Register requirements for publication • Implementation advice provided in the PMA Companion Volume Implementation Guide, Release 2.0, ready for publication at the same time as the training package.

G. Implementation of the COAG Industry Skills Council reforms to training packages

The decision being sought from the AISC will support the COAG Industry and Skills Council (CISC) reforms to training packages. Completion of the training package development work outlined in the Case for Change, together with extensive consultation, confirms that this work supports those reforms in the following ways:

Removal of obsolete or superfluous content

- In Stage 1, 27 existing units were revised which included removing unnecessary, repetitive, obsolete and superfluous content.
- In Stage 2, unnecessary units will be removed from the Certificate III in Process Plant Operations electives to better reflect industry intent.

Inclusion of advice about industry's expectations of training delivery

- The PMA Companion Volume Implementation Guide, Release 2.0 provides advice on duration of training, delivery modes and pathways, work-based learning strategies, assessment and learner characteristics.

Support for individuals to move easily from one related occupation to another

- The PMA Chemical, Hydrocarbons and Refining Training Package already supports the movement of individuals between related occupations through the use of common core units and substantial use of imported units in qualifications. Work on the draft components submitted for endorsement in Stage 1 has followed this approach, and work on Stage 2 will continue and expand on this.
- Improved qualification design in Stage 2 will enhance alignment with the Australian Qualifications Framework.

Creation of units that can be owned and used by multiple industry sectors

- The PMA Chemical, Hydrocarbons and Refining Training Package already includes a range of units that are used across multiple sectors, and while not reviewed as part of this project, those units continue to be a feature of the draft qualifications.
- Five (5) new units have been created, all of which have application across multiple sectors, for example the new unit PMAOPS347 Create and conduct isolations in the workplace.

H. A copy of the full content of the proposed training package components

The AISC will be provided with a copy of the developed training package components to be approved under the Case for Endorsement.

Appendices

Appendix A: Comparison of Case for Change and components submitted for endorsement

Case for Change	Stage 1 (this endorsement submission)	Stage 2 (to be confirmed)
4 qualifications: • PMA30116 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	1 updated qualification to reflect updated unit codes and titles and include 5 new PMA units in the electives: • PMA30116 Certificate III in Process Plant Operations	Restructure of 1 qualification to align with the LNG Framework including development of specialisations and removal of excessive, repetitive and obsolete electives: • PMA30116 Certificate III in Process Plant Operations
• 1 new skill set	Removed from project	Removed from project
81 existing units and up to 5 new units	27 existing units revised. 5 new units: • PMAOPS344 Operate and troubleshoot flare system • PMAOPS345 Operate and troubleshoot gas treatment process • PMAOPS346 Operate and troubleshoot liquefaction process • PMAOPS347 Create and conduct isolations in the workplace • PMAOPS348 Operate safety, protection and shutdown systems	Revision or deletion of existing units as required by industry. Up to 17 new units.

Appendix B: List of draft components for endorsement

Units for endorsement (with prerequisites)

Unit code	Unit title	Prerequisites
PMAOMIR306	Operate control panel during an emergency	PMAOPS315 Operate and troubleshoot process control systems
PMAOMIR322	Manage incident response information	
PMAOMIR323	Manage communication systems during an incident	
PMAOPS306	Operate and troubleshoot production unit	
PMAOPS310	Operate and troubleshoot distillation system	
PMAOPS311	Operate and troubleshoot reactors and reaction equipment	
PMAOPS313	Operate and troubleshoot furnaces to induce reaction	
PMAOPS314	Operate and troubleshoot compressor systems	
PMAOPS315	Operate and troubleshoot process control systems	
PMAOPS316	Organise storage and logistics of general materials	
PMAOPS317	Undertake ship transfer operations	
PMAOPS318	Conduct artificial lift	
PMAOPS322	Undertake well management	
PMAOPS328	Operate and troubleshoot heating furnace	
PMAOPS331	Operate and troubleshoot gas turbine system	
PMAOPS332	Generate electrical power	
PMAOPS334	Operate and troubleshoot gas absorption system	
PMAOPS336	Operate and troubleshoot fixed-bed adsorption system	
PMAOPS337	Operate and troubleshoot liquid extraction system	
PMAOPS338	Communicate and monitor pipeline activities	
PMAOPS339	Operate and troubleshoot wells and gathering systems	
PMAOPS341	Operate and troubleshoot cryogenic processes	
PMAOPS342	Conduct pipeline pigging	
PMAOPS343	Transfer bulk fluids into/out of storage facility	
PMAOPS344	Operate and troubleshoot flare system	
PMAOPS345	Operate and troubleshoot gas treatment process	
PMAOPS346	Operate and troubleshoot liquefaction process	
PMAOPS347	Create and conduct isolations in the workplace	PMASUP244 Prepare and isolate plant
PMAOPS348	Operate safety, protection and shutdown systems	
PMASUP348	Monitor and maintain cathodic protection systems	
PMASUP349	Monitor and control repairs and modifications on operational pipe	
PMASUP350	Control corrosion	

Appendix C: Letter of support from IRC

IBSA
Innovation & Business Skills Australia

ABN 74 109 600 302
t +61 3 9815 7000
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e reception@ibsa.org.au
w www.ibsa.org.au

Level 11 176 Wellington Pde East Melbourne Victoria AUSTRALIA 3002

29 November 2019

Dear Australian Industry and Skills Committee,

As the Chair of the Process Manufacturing, Recreational Vehicles and Laboratory IRC (IRC), I write on behalf of the IRC to support the endorsement of the PMA Chemicals, Hydrocarbons and Refining Training Package, Release 2.0, as completed under the Activity Order IBSA/TPD/2016-2017/007.

The new training package components closely reflect current industry practice.

A fully constituted IRC approved the draft components for submission to the Australian Industry and Skills Committee for endorsement.

Regards

Keith Monaghan
Chair, Process Manufacturing, Recreational Vehicle and Laboratory IRC

Appendix D: Technical Advisory Committee members

Name	Organisation
Chester Church	Alcoa of Australia
Maxwell Murray	Arrow Energy
Chloe Fraser	BHP
Samantha Allen-Rowlandson	BP
Louise Bonser	Chevron
Amy Hodgens	ConocoPhillips
Peter Morgan	Glencore
Gordon McIntosh	INPEX
Ray Perrin	Origin Energy
Patrick Tierney	Programmed
Leanne Reid	Qenos
Nigel Haywood	Resources Industry Training Council
Ian Ritchie	Santos
Brett Woods	Santos
Adrian Button	Shell
Ty Theodore	South Metropolitan TAFE (ACEPT)
John Wells	Woodside

Appendix E: Other participating stakeholders

Key industry organisations that were contacted as part of the project:

Organisation	Jurisdictions in which companies operate
Alcoa	WA
Arrow Energy	Qld
BHP	WA/NSW/Qld/SA
BP	WA
Central Petroleum	Qld/NT
Chevron	WA
ConocoPhillips	NT/WA/Qld
GlenCore	WA/Qld/NSW/NT
INPEX	NT/WA
Qenos	NSW/Vic.
Origin Energy	Qld
Santos	Qld/WA/NSW/NT/SA
Shell	WA/Qld
Wesfarmers Chemicals, Energy & Fertilisers	WA
Woodside	WA
ERGT Australia	WA/NT/Vic.
Australian Petroleum Production & Exploration Association (APPEA)	National
Energy Skills Queensland	Qld
Industry Skills Advisory Council Northern Territory (ISACNT)	NT
National Energy Resources Australia (NERA)	National
Programmed	NT/WA/Qld
Resources Industry Training Council	WA
South Metropolitan TAFE (ACEPT)	WA

Registered Training Organisations with the Certificate III in Process Plant Operations on scope were advised of opportunities to review drafts and provide feedback:

Apprenticeships Group Australia
Australian Skills Group
Box Hill Institute
Calibre Training & Development
Charles Darwin University
Chisholm Institute
Competency Training
Dalton Training Services
Education Institute
IPS Institute
Kevesther
Mackay Electrical Training
National Training Services
Precision Training Australia
Queensland Alumina Limited
RII Skills Centre
Site Skills Training
Skillstrain
South Metropolitan TAFE (WA)
South Regional TAFE (WA)
TAFE International Western Australia
TAFE Gippsland
TAFE Queensland

TAFE NSW
Well Grounded Consultancy
Zero Harm Safety & Training

Appendix F: State and territory stakeholders consulted

ORGANISATION	NAME	STATE
State and Territory Training Authorities (STAs)		
Australian Capital Territory Government	Patrick Goodarzi	ACT
Australian Capital Territory Government	Tim Sealy	ACT
New South Wales Government	Susan Bearfield	NSW
Northern Territory Government	Nelson Brown	NT
Northern Territory Government	Dianne Fong	NT
Queensland Government	Tim Maloney	Qld
Queensland Government	Anthea Brazel	Qld
South Australia Government	Juliana Fitzpatrick	SA
Skills Tasmania	Linda Seaborn	TAS
Skills Tasmania	Stuart Hollingsworth	TAS
Victoria Government	Jacqueline Spencer	Vic.
Western Australia Government	Frances Parnell	WA
Industry Training Advisory Bodies (ITAB)		
Manufacturing Skills Australia (MSA)	Leon Drury	NSW
Industry Skills Advisory Council Northern Territory (ISAC NT)	Debbie Paylor	NT
Queensland Manufacturing Industry (QMI) Solutions	Sam Nicolosi	Qld
Resources industry Training Council	Nigel Haywood	WA
Curriculum Maintenance Managers		
Chisholm Institute	Paul Saunders	Vic.

Appendix G: Credit arrangements

Note: No qualifications are being submitted for endorsement; the following represents existing credit arrangements for those qualifications referenced in this Case for Endorsement.

Credit Arrangements for PMA Chemical, Hydrocarbons and Refining Training Package, Release 2.0		
Qualification Code	**Qualification Title**	**Credit Arrangement Details**
PMA20116	Certificate II in Process Plant Operations	At the time of endorsement of this training package, no national credit arrangements exist.
PMA30116	Certificate III in Process Plant Operations	At the time of endorsement of this training package, no national credit arrangements exist.
PMA40116	Certificate IV in Process Plant Technology	At the time of endorsement of this training package, no national credit arrangements exist.
Links	PMA Companion Volume Implementation Guides are available at: https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=9fc2cf53-e570-4e9f-ad6a-b228ffdb6875	

Appendix H: Quality assurance report

SECTION 1 – DETAILS OF DRAFT TRAINING PACKAGE COMPONENTS

INFORMATION REQUIRED	DETAIL
Training Package title and code	PMA Chemical, Hydrocarbons and Refining Training Package, Release 2.0
Number of new or revised qualifications	Nil
Number of new or revised units	Five (5) new and twenty-seven (27) revised units of competency – see Appendix I
Confirmation that the draft endorsed components meet the *Standards for Training Packages 2012*	The draft components reviewed meet the requirements of the *Standards for Training Packages 2012*.
Name of panel member completing Quality Report	Jenni Oldfield, **JO**Consultancy
Statement that the panel member: • is independent of development and/or validation activities associated with the *Case for Endorsement* • has not undertaken the *Equity* and/or *Editorial Report* • is independent of the Training Package or Training Package components being reviewed.	Jenni Oldfield is an independent Quality Assurance Panel member and has not undertaken the equity or editorial reports or been involved in the development or validation activities associated with any aspect of this review of the *PMA Chemical, Hydrocarbons and Refining, Release 2.0.*
Date completed	21 November, 2019

SECTION 2 – COMPLIANCE WITH THE STANDARDS FOR TRAINING PACKAGES

Standards for Training Packages	Standard met –yes or no	Comments (including any relevant comments from the Equity and Editorial Reports)
Standard 1 Training Packages consist of the following: 1. AISC endorsed components: • units of competency • assessment requirements (associated with each unit of competency) • qualifications • credit arrangements. 2. One or more quality assured companion volumes.	***Yes***	The components of the *PMA Chemical, Hydrocarbons and Refining Training Package, Release 2.0,* submitted for endorsement meet the requirements of Standard 1. Components include: • 5 new units of competency with associated assessment requirements ○ PMAOPS344 Operate and troubleshoot flare systems ○ PMAOPS345 Operate and troubleshoot gas treatment process ○ PMAOPS346 Operate and troubleshoot liquefaction process ○ PMAOPS347 Create and conduct isolations in the workplace ○ PMAOPS348 Operate safety, protection and shutdown systems • 27 revised units (refer to Appendix I for list) • no qualifications • no credit arrangements (not relevant to this submission). The submission includes the *PMA Manufacturing Training Package Implementation Guide Release 2.0*, which has been quality assured.
Standard 2 Training Package developers comply with the AISC *Training Package Products Policy*.	***Yes***	IBSA Manufacturing has complied with the *Training Package Products Policy*. All components are appropriately coded with new, unique codes. Access and equity issues are addressed in the *PMA Companion Volume Implementation Guide, Release 2.0.* Foundation Skills have been highlighted in the appropriate field in all the units submitted, following advice from industry. Supporting information about Foundation Skills is included in the

Standards for Training Packages		Standard met –yes or no	Comments (including any relevant comments from the Equity and Editorial Reports)
			Implementation Guide, expressed using reference to the Australian Core Skills Framework (ACSF) and Employability Skills. All units have been listed and appropriately mapped to in the *PMA Manufacturing Training Package Implementation Guide Release 2.0.*
Standard 3	Training Package developers comply with the AISC *Training Package Development and Endorsement Process Policy*.	***Yes***	IBSA Manufacturing has complied with the AISC *Training Package Development and Endorsement Process Policy*. The *Case for Endorsement* outlines the training package development process, ensuring thorough national industry consultation and stakeholder engagement throughout, using a variety of methods: • IRC monitoring • specialist technical advice from a large Training Advisory Committee (TAC) • two rounds of public consultation, where key industry organisations, State/Territory Training Authorities and Industry Training Advisory Bodies were notified and provided feedback • establishment of a project webpage outlining project activities and including a subscriber alert option. Editorial and Equity Reports were completed by an inhouse editor.
Standard 4	Units of competency specify the standards of performance required in the workplace.	***Yes***	All 32 units of competency specify the standards of performance required for operators who work in chemicals hydrocarbons and refining sectors.

Standards for Training Packages		Standard met –yes or no	Comments (including any relevant comments from the Equity and Editorial Reports)
Standard 5	The structure of units of competency complies with the unit of competency template.	***Yes***	All 32 units of competency comply with the unit template.
Standard 6	Assessment requirements specify the evidence and required conditions for assessment.	***Yes***	The assessment requirements of all 32 units clearly specify the volume and frequency of tasks that must be performed for assessment, relevant knowledge evidence and clear conditions for assessment. The statements around frequency of tasks to be performed are brief and similar across units, but well supported by industry representatives.
Standard 7	Every unit of competency has associated assessment requirements. The structure of assessment requirements complies with the assessment requirements template.	***Yes***	Every unit has associated assessment requirements, the structure of which complies with the template included in the *Standards for Training Packages 2012*. This has been confirmed by the Editorial review.
Standard 8	Qualifications comply with the Australian Qualifications Framework specification for that qualification type.	***NA***	No qualifications included in this submission.
Standard 9	The structure of the information for the Australian Qualifications Framework qualification complies with the qualification template.	***NA***	No qualifications included in this submission.
Standard 10	Credit arrangements existing between Training Package qualifications and Higher Education qualifications are listed in a format that complies with the credit arrangements template.	***NA***	No qualifications included in this submission.

Standards for Training Packages	Standard met –yes or no	Comments (including any relevant comments from the Equity and Editorial Reports)
Standard 11 A quality assured Companion Volume Implementation Guide produced by the Training Package developer is available at the time of endorsement and complies with the Companion Volume Implementation Guide template.	***Yes***	The *PMA Companion Volume Implementation Guide, Release 2.0*, includes information about all components included in this review, which have been added to the *PMA Chemical, Hydrocarbons and Refining Training Package, Release 2.0*. The Implementation Guide is a general guide for the whole *PMA Manufacturing Training Package* covering several industry sectors, but the changes between Release 1.0 and 2.0 of the training package and the addition of the five Operations (OPS) units is clear. This guide will be available at endorsement for publication on the VETNet site.
Standard 12 Training Package developers produce other quality assured companion volumes to meet the needs of their stakeholders as required.	***NA***	This review has not included the review of any other companion volumes.

SECTION 3 – COMMENTS ON HOW THE DRAFT TRAINING PACKAGE COMPONENTS MEET THE QUALITY PRINCIPLES

I. 1. Reflect identified workforce outcomes

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
Driven by industry's needs	• Changes demonstrate a clear link back to relevant AISC decisions commissioning the work, the IRC Skills Forecast and Proposed Schedule of Work, National Review Schedule and/or Case for Change, or demonstrate other evidence of industry needs	Yes	The *Case for Endorsement* includes detail of *Activity Order IBSA/TPD/2016-2017/007*, initially due to be completed by June 2018. The Activity Order was varied in September 2018 to allow the project to align with in industry project to analyse job roles (and training) in the LNG industry. In June 2019 the project was formally split into two parts: • the first part being the review and update of 27 existing units or competency and the development of 5 new units (this report covers this part of the project); • the second part is to revise the Certificate III in Process Plant Operations and develop up to 17 new units (yet to be completed).

Compliant and respond to government broad policy initiatives	• Training package components are compliant with the Standards for Training Packages 2012, the Training Package Products Policy and the Training Package Development and Endorsement Process Policy • Evidence that the training package components respond to Ministers' policy initiatives, in particular the 2015 training package reforms	Yes	The *Case for Endorsement* provides evidence that the *PMA Chemical, Hydrocarbons and Refining Training Package, Release 2.0* components submitted for endorsement are compliant with both the *Training Package Products Policy* and the *Training Package Development and Endorsement Process Policy*, and that the new components have been: • driven by industry needs • supported by the nature and scope of stakeholder consultation • supported by stakeholders as reflecting contemporary work organisation and job profiles. This quality assurance review determines that the components are compliant with the *Standards for Training Packages 2012*. Evidence that the training package work has responded to the Ministers' policy initiatives, in particular the 2015 training package reforms, includes: • removing obsolete or superfluous content from 27 units • the inclusion of industry's expectations of training delivery in the *PMA Companion Volume Implementation Guide Release 2.0* • support for individuals to move between related occupations through the use of common core units and several imported units (to be addressed in the draft qualification to be completed in Stage 2 of this project) • creation of units that can be used across several sectors in the PMA Training Package, even though units have been developed within an LNG project.

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
Reflect contemporary work organisation and job profiles incorporating a future orientation	• Open and inclusive consultation and validation commensurate with scope and impact has been conducted	Yes	The *Case for Endorsement* provides details of an open and inclusive consultation and validation process, commensurate with the scope and impact of the project, including: • IRC monitoring • specialist technical advice from a large TAC representing the broad range of users including LNG, coal seam gas (CSG), chemicals and refining, and RTO representatives – who all met on five occasions • two rounds of public consultation, where key industry organisations, State/Territory Training Authorities and Industry Training Advisory Bodies were notified (4 weeks in total, more than 760 alerts sent to stakeholders) • establishment of a project webpage outlining project activities and including a subscriber alert option (239 webpage views across the project).

J. 2. Support portability of skills and competencies including reflecting licensing and regulatory requirements

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
Support movement of skills within and across organisations and sectors	• Packaging rules, qualifications framework, and pathways support movement within and across sectors • Identification of skill sets that respond to client needs	Yes	The *PMA Companion Volume Implementation Guide, Release 2.0*, provides information about pathways between PMA qualifications and skill sets.
Promote national and international portability	• Other national and international standards for skills are considered	Yes	The *Case for Endorsement* includes details of thorough consultations that revealed that industry had commissioned a job role analysis of Certificate III and IV level workers in the LNG sector, with the intention of developing a framework to ensure that future training would meet industry needs. The LNG Framework shows the alignment of existing and proposed new units of competency with future job roles, and industry have specified that current and future training package components should align. The alignment of PMA Training Package work to the LNG Framework is an excellent example of industry leading vocational education and training.

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
Reflect regulatory requirements and licensing	• Solutions to incorporate licensing and regulatory requirements are brokered and there is clear evidence of support from licensing and industry regulatory bodies	Yes	Units included in this submission include one of the following statements: • No licensing or certification requirements exist at the time of publication. Relevant legislation, industry standards and codes of practice within Australia must be applied. • Some jurisdictions may require the holder of this unit to be licensed or certified and users should check with the relevant authorities. Relevant legislation, industry standards and codes of practice within Australia must be applied.

K. 3. Reflect national agreement about the core transferable skills and core job-specific skills required for job roles as identified by industry

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
Reflect national consensus	• Active engagement across industry has sought to achieve a national consensus about the advice being provided to the AISC.	Yes	The *Case for Endorsement* outlines the national consultation and validation process and the organisations and participants involved. The TAC included a significant portion of industry stakeholders using the *PMA Chemicals, Hydrocarbons and Refining Training Package*. Significant effort was also made with ExxonMobil to nominate a representative for the TAC but this did not eventuate. More than 760 stakeholders were alerted of consultation opportunities with key organisations and RTOs contacted (49) targeted which resulted in 239 view of the for project webpage during consultation periods. This demonstrates that IBSA Manufacturing sought to achieve a national consensus on the components submitted for endorsement. There are no reports by exception. A letter of support is from the IRC is included with the submission.

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
Recognise convergence and connectivity of skills	• Best use is made of cross-industry and work and participation bank units	Yes	Even though this project has focussed on LNG work, the new units have been written to apply to other sectors within the Chemical, Hydrocarbons and Refining Industry. Stage 2 of the project will focus on the revision of the Certificate III in Process Plant Operations and indications are that a number of cross-industry and work and participation bank units will be considered for inclusion.

L. 4. Be flexible to meet the diversity of individual and employer needs, including the capacity to adapt to changing job roles and workplaces

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
Meet the diversity of individual and employer needs	• Provide flexible qualifications that enable application in different contexts	N/A	This submission includes no qualifications. Stage 2 of the project will focus on the revision of the Certificate III in Process Plant Operations and the proposal is for this qualification to have specialisations to meet varying needs of industry work in different contexts.

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
Support equitable access and progression of learners	• Provide multiple entry and exit points • Pre-requisite units of competency are used only when required	Yes	Multiple entry and exit points to PMA qualifications are described in the *PMA Companion Volume Implementation Guide, Release 2.0*. Stakeholders have reviewed the need for prerequisite units during this project and none have been added to existing units. One existing unit has a prerequisite that remains in place: • PMAOPS315 Operate and troubleshoot process control systems is prerequisite to PMAOMIR306 Operate control panel during an emergency And one new unit has a prerequisite that has been deemed as appropriate by industry: • PMASUP244 Prepare and isolate plant is prerequisite to PMAOPS347 Create and conduct isolations in the workplace.

M. 5. Facilitate recognition of an individual's skills and knowledge and support movement between the school, vocational education and higher education sectors

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
Support learner transition between education sectors	• Provide pathways from entry and preparatory level as appropriate to facilitate movement between schools and VET, from entry level into work, and between VET and higher education qualifications	Yes	Detailed information on career pathways is included in the *PMA Companion Volume Implementation Guide Release 2.0.* Because of the nature of the work and the highly sophisticated plant required for 'operation', no PMA qualifications are appropriate for VET in Schools delivery. There are however pathways identified into higher education.

N. 6. Support interpretation by training providers and others through the use of simple, concise language and clear articulation of assessment requirements

Key features	Examples of evidence	Met: Yes / No	Comments/ other evidence demonstrated Provide brief commentary on how the draft endorsed components meet the Quality Principles with specific reference to the evidence provided, including any evidence provided by the Equity and Editorial Reports
Support implementation across a range of settings	• Industry advice about delivery is provided via a Companion Volume Implementation Guide ready for publication at the same time as the Training Package	Yes	Industry advice about delivery is provided in the *PMA Companion Volume Implementation Guide Release 2.0*, including information about health and safety, how to deal with access and equity issues and advice about foundation skills.
Support sound assessment practice	• Units of competency and their associated assessment requirements are clearly written and have consistent breadth and depth	Yes	The units of competency and their associated assessment requirements are clearly written, and the Editorial Report confirms this.
Support implementation	• Compliance with the TGA/National Register requirements for publication • Implementation advice is provided in a Companion Volume Implementation Guide that is ready for publication at the same time as the Training Package	Yes	All components within this submission comply with the requirements of the National Register and will be ready for publication on TGA at endorsement, including the *PMA Companion Volume Implementation Guide, Release 2.0*.

Appendix I: Units for endorsement

Revised units of competency

Unit code	Unit title	Prerequisite
PMAOMIR306	Operate control panel during an emergency	PMAOPS315 Operate and troubleshoot process control systems
PMAOMIR322	Manage incident response information	
PMAOMIR323	Manage communication systems during an incident	
PMAOPS306	Operate and troubleshoot production unit	
PMAOPS310	Operate and troubleshoot distillation system	
PMAOPS311	Operate and troubleshoot reactors and reaction equipment	
PMAOPS313	Operate and troubleshoot furnaces to induce reaction	
PMAOPS314	Operate and troubleshoot compressor systems	
PMAOPS315	Operate and troubleshoot process control systems	
PMAOPS316	Organise storage and logistics of general materials	
PMAOPS317	Undertake ship transfer operations	
PMAOPS318	Conduct artificial lift	
PMAOPS322	Undertake well management	
PMAOPS328	Operate and troubleshoot heating furnace	
PMAOPS331	Operate and troubleshoot gas turbine system	
PMAOPS332	Generate electrical power	
PMAOPS334	Operate and troubleshoot gas absorption system	
PMAOPS336	Operate and troubleshoot fixed-bed adsorption system	
PMAOPS337	Operate and troubleshoot liquid extraction system	
PMAOPS338	Communicate and monitor pipeline activities	
PMAOPS339	Operate and troubleshoot wells and gathering systems	
PMAOPS341	Operate and troubleshoot cryogenic processes	
PMAOPS342	Conduct pipeline pigging	
PMAOPS343	Transfer bulk fluids into/out of storage facility	
PMASUP348	Monitor and maintain cathodic protection systems	
PMASUP349	Monitor and control repairs and modifications on operational pipe	
PMASUP350	Control corrosion	

New units of competency

Unit code	Unit title	Prerequisite
PMAOPS344	Operate and troubleshoot flare system	
PMAOPS345	Operate and troubleshoot gas treatment process	
PMAOPS346	Operate and troubleshoot liquefaction process	
PMAOPS347	Create and conduct isolations in the workplace	PMASUP244 Prepare and isolate plant
PMAOPS348	Operate safety, protection and shutdown systems	