



## RSHQ Response Document – Feedback from consultation draft Hydrogen Safety Code of Practice

Resources Safety and Health Queensland (RSHQ) received 23 submissions with over 200 pieces of feedback on the consultation draft of the Hydrogen Safety Code of Practice (the Code). Following assessment of the feedback, some changes have been made to the final draft of the Code.

Key changes made to the Code are:

- The quality of hydrogen used as a fuel gas will not be prescribed. Under section 622 of the *Petroleum and Gas (Production and Safety) Act 2004*, the Chief Inspector may issue a gas quality approval. This approach will enable more flexibility for hydrogen suppliers.
- The Code recommends, where relevant, hydrogen production is included in the Safety Management System for operating plant, e.g., production at a refueller or production at a blending facility
- Hydrogen gas devices have been categorised into two types: “*designed packaged systems*” or “*construct and install in place*”. Systems on vehicles or supplied in a package with minimal site installation requirements are “*designed packaged systems*” and may use the multiple device approval pathway. Systems that are installed on site are “*construct and install in place*” and require individual approval similar to the existing Type B device approval process.

Table 1 provides detailed responses to all feedback received categorised by the following topics:

- Prescribed Quality
- Prescribed Odour
- Gas Device (Design, Approval, Installation, Approval Authorities)
- Mobile Fuel Cell Gas Systems (i.e., FCEV and other vehicles/vessels)
- Skills, Competencies and Licences
- Safety of Gas Systems – Owner responsibilities
- Supplying hydrogen in a distribution system, including blends over 15%.
- Fuel Gas Delivery Network (FGDN) Operating Plant
- Production
- Scope
- WHS and P&G Legislation
- Definitions

RSHQ would like to thank all responders who took the time to provide valuable feedback. If you provided feedback and would like to discuss how it has been addressed, please get in touch: [hydrogensafety@rshq.qld.gov.au](mailto:hydrogensafety@rshq.qld.gov.au)



Table 1 Detailed Response to Feedback

Topic Area	Feedback Summary	RSHQ Response	Updates to Code
<p><b>Prescribed Quality</b></p>	<p>While feedback was generally supportive of prescribing the quality, two key points were raised:</p> <ol style="list-style-type: none"> <li>1. Commonwealth Fuel Quality Standards may apply to automotive applications.</li> <li>2. There may not be capability within Australian laboratories to certify against the full AS ISO 14687 specification</li> </ol>	<p>1. <i>Commonwealth Fuel Quality Standards</i> RSHQ has reviewed the <i>Commonwealth Fuel Quality Standards Act 2000</i>, contacted the relevant federal department and confirmed that hydrogen is not currently defined as a fuel or covered in the scope of this legislation. Should the Fuel Quality Standards Act be amended to prescribe a quality for hydrogen fuel, this would remove the need for Queensland legislation to prescribe fuel gas quality</p> <p>2. <i>Capability of local laboratories to test to AS ISO 14867 specification</i> RSHQ has liaised with local testing laboratories and confirmed there is currently no capacity within Australia to test the full requirements of AS ISO 14687. Additionally, taking accurate samples can be challenging and having the required tests conducted internationally can be costly.</p> <p>Under Chapter 7 of the <i>Petroleum and Gas (Production and Safety) Act 2004</i> (P&amp;G Act), <b>when fuel gas is supplied as fuel to a consumer it must:</b></p> <ul style="list-style-type: none"> <li>• meet the prescribed quality (s621); or</li> <li>• be the quality approved by the Chief Inspector (s622); or</li> <li>• be the quality agreed to by the supplier and recipient in an agreement (copy to be provided to the Chief Inspector) (s621).</li> </ul> <p>The Petroleum and Gas (Safety) Regulation 2018 (P&amp;G Safety Reg) currently prescribes quality requirements for the supply of other fuel gases but not for hydrogen.</p> <p>If no quality is prescribed, all hydrogen suppliers would need to obtain a <b>gas quality approval</b> or have <b>gas quality agreement</b> in place.</p>	<p>The Code has been updated to include advice about the application of the Hydrogen Fuel Gas Quality Approval 2022.</p>



Topic Area	Feedback Summary	RSHQ Response	Updates to Code
		<p>RSHQ considers the most efficient resolution for ensuring the gas quality of hydrogen by suppliers is a Chief Inspector <b>gas quality approval</b> under section 622 of the P&amp;G Act. The <b>gas quality approval</b> will provide a risk-based approach and allow operators to determine testing requirements based on risk.</p> <p>The <b>gas quality approval</b> requires hydrogen supplied as a fuel gas to meet the quality requirements set out in section 8 of AS ISO 19880.8:2021 <i>Gaseous hydrogen – Fuelling stations, Part 8: Fuel quality control</i> (AS ISO 19880.8). A supplier proposing to supply outside these specifications, will need to obtain a <b>gas quality agreement</b> or <b>gas quality approval</b>.</p> <p>The scope of the AS ISO 19880.8 is for the “<i>quality of the gaseous hydrogen at hydrogen distribution facilities and hydrogen fuelling stations for proton exchange membrane (PEM) fuel cells for road vehicles</i>”. The Hydrogen Fuel Gas Quality Approval 2022 provides for the standard to apply more broadly and includes a list of alternate terms to assist with its application. Suppliers are required utilise a methodology set out in Section 8 of the standard with consideration of the end-use of the hydrogen, be that for road vehicles, other vehicles, stationary systems, or combustion applications.</p> <p>Note that AS ISO 19880.8 calls up ISO 14687-2 <i>Hydrogen fuel – Product specification</i> and allows a prescriptive or risk assessment methodology for setting the quality assurance plan.</p> <p>Any proponents unable to meet the either the prescribed quality or approved quality (e.g., a hydrogen blend outside the specification of AS 4564) should seek a <b>gas quality agreement</b> or <b>gas quality approval</b> for their proposed supply quality.</p>	



Topic Area	Feedback Summary	RSHQ Response	Updates to Code
<b>Prescribed Odour</b>	<p>A number of points of feedback indicated further clarification is required about:</p> <ol style="list-style-type: none"><li>1. When the prescribed odour requirement in the P&amp;G Safety Reg section 73 applies</li><li>2. When an operator requires a copy of the Gas Compliance Certificate (GCC)</li><li>3. Why leak detection has been set as a requirement and not gas detection</li></ol>	<ol style="list-style-type: none"><li>1. The prescribed odour requirements only apply when fuel gas is supplied to a consumer. Where a facility produces and consumes the hydrogen without “supplying” to a separate consumer, the prescribed odour provision does not apply. However, the operator of the facility must still consider, assess and control the risk associated with unodourised fuel gas.  The current odour exemption process provided in section 628 of the P&amp;G Act can only be applied to industrial sites and leaves the responsibility on the supplier. RSHQ does not believe this is an adequate solution for the emerging hydrogen market.</li><li>2. The Code has outlined a process whereby the operator of a refuelling station can supply unodourised hydrogen to a mobile fuel cell gas system without a copy of the GCC. The safety is maintained by the mobile system being appropriately designed and approved with safety controls. More information on the mobile fuel cell gas systems is provided below.  For operators that are supplying unodourised fuel gas to a stationary or portable system, a GCC is required.</li><li>3. Gas detection is a type of leak detection and may be installed at appropriate locations to detect a leak. Leaks may also be detected by other means such as pressure sensors, ultrasonic detectors etc If gas detection is used an assessment must be made to ensure the gas detectors are installed in the locations where a leak may accumulate.  Note: the Code requires all systems supplied with unodourised fuel gas to have <i>leak detection</i> and automatic shut off.</li></ol>	No change to Code



Topic Area	Feedback Summary	RSHQ Response	Updates to Code
		<p>Note: where gas detection is used a quantitative value can be determined to assess the level of risk present. Values approaching or exceeding the LEL are unsafe, in an outdoor location a leak may never reach unsafe levels</p>	
<p><b>Gas Device – Design</b></p>	<p>Feedback questioned if there would be safety requirements (standards) for components</p> <p>Feedback also asked about the process for Type A hydrogen devices</p>	<p>To enable maximum flexibility for system design, there will be no safety requirements for particular approved components, the system designer needs to ensure the components specified in the design are fit for purpose.</p> <p>Type A devices that operate on hydrogen need to meet requirements of existing safety requirements. Where the relevant safety requirement cannot be complied with the Section 15* process should be followed.</p> <p>For components and controllers, schedule 2 of the P&amp;G Safety Reg lists safety requirements for controllers. Where relevant to the system being designed these must be complied with. In addition, system designers should consider the requirements outlined in relevant standards (e.g., UN R 134, AS 62282 series).</p> <p>Fuel cell gas systems (mobile or stationary) that will use unodourised fuel gas must have leak detection and automated shut-off incorporated in the design.</p>	<p>No change to Code</p>
<p><b>Gas Device – Approval</b></p>	<p>Feedback indicated:</p> <ul style="list-style-type: none"> <li>- The process for multiple device approval was unclear</li> <li>- Installation process was not clear for systems and concern was raised about the manufacturer</li> </ul>	<p>The types of approval have been simplified using the terms:</p> <ul style="list-style-type: none"> <li>- A <b>designed packaged system</b> device is built by the manufacturer with no, or very minimal, site installation requirements. Examples include FCEV and self-contained hydrogen energy storage systems</li> <li>- A <b>construct and install in place</b> device is installed onsite by the holder of an appropriate gas work authority. The devices, pipework and related instruments and controls are installed on site. Examples include hydrogen</li> </ul>	<p>New terms introduced</p> <ul style="list-style-type: none"> <li>- <b>Designed packaged system</b></li> <li>and</li> <li>- <b>Construct and install in place</b></li> </ul> <p>Figure 2 updated to reflect new terms and remove</p>



Topic Area	Feedback Summary	RSHQ Response	Updates to Code
	<p>being required to install the device</p> <ul style="list-style-type: none"> <li>- There was concern that an additional approval was required for vehicles certified to UN Regulation No:134 <i>Hydrogen fuel cell vehicle safety</i> (UN R 134)</li> <li>- There was concern about approval of Type A devices and re-approval of a large number of devices if a natural gas network was to be supplied a fuel gas outside the AS 4564 specification</li> </ul>	<p>power systems that are not supplied in a package, hydrogen supplied to a combustion device</p> <p>All devices using hydrogen as fuel gas will need to be approved either through UN R 134 certification or through the holder of a gas device approval authority (GDAA).</p> <p>There is no requirement for manufacturers to install devices. Installation can be carried out by the holder of an appropriate gas work authorisation.</p> <p>It is recognised a significant amount of recertification and risk assessment work would be required to supply an existing gas network with a product that was outside the specification of AS 4564-2011 <i>Specification for general purpose natural gas</i> (AS 4564). This should be considered by any proponent proposing to supply a network with hydrogen or a blend that is outside the specification of AS 4564. Please contact RSHQ early for any projects proposing to supply pure hydrogen or hydrogen blends outside of AS 4564 to ensure appropriate approval processes are in place.</p> <p>For Type A devices, the approval options are:</p> <ul style="list-style-type: none"> <li>- The device is type approved to an accepted standard (refer sch.2, P&amp;G Safety Reg)</li> <li>- <u>Prior to the Code being finalised</u>, where the requirements of a preferred standard are not satisfied the Section 15* process must be followed</li> <li>- The device uses the Type B pathway (individual or multiple) outlined in the Code</li> </ul>	<p>reference to supplier installing the system</p> <p>Electrical knowledge added to requirements for fuel cell GDAA</p>
<b>Gas Device Approval</b>	Feedback noted that having no GDAA holders to approve fuel cell gas systems could	RSHQ recognises having GDAA holders that can approve fuel cell gas systems is crucial to Queensland’s hydrogen industry. RSHQ are finalising applications to grant GDAA’s and it is anticipated at least three holders will be available before the	Electrical knowledge added to requirements for



Topic Area	Feedback Summary	RSHQ Response	Updates to Code
<b>Authorities (GDAA)</b>	<p>cause delays for projects as device approvals would need to be done by the Chief Inspector</p> <p>Feedback also highlighted the need for electrical knowledge when approving fuel cell gas devices</p>	<p>end of 2022. If you are unable to find a suitable approval authority, please contact RSHQ (<a href="mailto:hydrogensafety@rshq.qld.gov.au">hydrogensafety@rshq.qld.gov.au</a>).</p> <p>The inspectorate will update technical submission forms and guidelines to provide more information to approving authorities. For initial projects, RSHQ will work with GDAA holders to identify where more information is required.</p>	<p>being granted a fuel cell GDAA.</p>
<b>Gas Device – Installation</b>	<p>Feedback raised concerns about the suitability of AS/NZS 5601.1:2013 <i>Gas installations, Part 1: General installations (AS NZS 5601.1)</i> for hydrogen applications and about requiring the manufacturer to commission a system</p>	<p>The existing preferred standards listed as safety requirements must be utilised where relevant.</p> <p>AS/NZS 5601.1 is currently under review to bring hydrogen into scope. Section 2 of AS/NZS 5601.1 outlines performance-based requirements for fuel gas systems over 200kPa. This can be applied to hydrogen systems but does not provide prescriptive detail. As such, the design must also include the details required for system installation.</p> <p>The design engineer should consider AS/NZS 5601.1 section 2 requirements when developing installation instructions, however as the installation instructions form part of the design, the Section 15* process does not need to be followed for hydrogen systems designed using the process in the Code.</p> <p>The original flowchart showed a pathway for installation of imported equipment by the package supplier. This was intended for packaged systems that arrive assembled (e.g., vehicles or containerised fuel cell gas systems) and it was not the intention to have manufacturer's commission imported systems locally.</p> <p>The flowchart has been updated to reflect that any authorised person can install an approved gas system / device.</p>	<p>Figure 2 updated to reflect new terms and remove reference to supplier installing the system.</p>



Topic Area	Feedback Summary	RSHQ Response	Updates to Code
<b>Mobile Fuel Cell Gas Systems (FCEV)</b>	<p>Concern was raised about imported vehicles requiring additional approval for use in Queensland or for importers to hold a gas device approval authority.</p> <p>Additional concern was raised about RSHQ duplicating requirements that exist under the Australian Design Rules (ADR) scheme for vehicles.</p>	<p>Mobile gas systems that are type approved to UN R 134 are approved for use in Queensland by the Chief Inspector. No further approval from a GDAA holder is required. The supplier must be able to provide evidence of the approval, if requested to do so.</p> <p>While RSHQ recognises the UN R 134 as an acceptable standard, this will not be the only pathway to have a mobile fuel cell gas system approved.</p> <p>RSHQ recognise that the Australian Vehicle Standards regulator have indicated UN R134 / Global Technical Regulation No. 13 will be an ADR requirement in the coming years. As such, it is advantageous for road registered vehicles to achieve this standard to ensure ongoing road compliance.</p> <p>Mobile gas systems that do not have this type of approval require approval by a GDAA holder before use in Queensland.</p> <p><i>ADRs, FCEV and Hydrogen Gas systems</i></p> <ul style="list-style-type: none"><li>- ADR set minimum requirements for vehicles to be registered for road-use in Australia.</li><li>- Currently ADR have no requirements for hydrogen gas system safety on board vehicles</li><li>- RSHQ have reached out to the Commonwealth Vehicle Standards regulator and understand it is anticipated the hydrogen safety ADR will be adopted sometime in the next 2-3 years but may not be mandatory until 2026</li></ul> <p>As the Code proposes to remove a current safety measure (prescribed odour), an alternate measure needs to be in place to ensure the same level of safety is achieved and the risk to community is as low as reasonably practicable.</p>	<p>Figure 2 updated to clarify the UN R 134 certified vehicles are automatically approved for use in Queensland.</p>



Topic Area	Feedback Summary	RSHQ Response	Updates to Code
		<p>Vehicle design needs to account for unodourised fuel gas by incorporating leak detection and automatic shut-off.</p> <p>The Code outlines a process for vehicles that are not certified to UN R 134 including industrial trucks, mine vehicles, domestic marine vessels. RSHQ will work with the Department of Transport and Main Roads to streamline vehicle registration, so gas system approval is checked at the time of registering the vehicle.</p> <p><b>Note:</b> If there is another standard being used for type approvals of vehicles that you would like recognised in Queensland, please contact RSHQ: <a href="mailto:hydrogensafety@rshq.qld.gov.au">hydrogensafety@rshq.qld.gov.au</a></p>	
<b>Skills, competencies and Licences</b>	<p>Feedback varied significantly in relation to licensing and qualification requirements.</p> <p>Some feedback strongly supported including hydrogen in existing plumbing and gas fitting qualification pathways.</p> <p>Other feedback suggested some activities should not require a licence or that there should be no requirement to complete a Certificate IV in gas fitting for some hydrogen gas work (such as working on FCEV).</p>	<p>There is an existing requirement that anyone performing gas work in Queensland is required to hold a gas work licence or authorisation. Under the P&amp;G Act, the Chief Inspector grants licences and authorisations for gas work.</p> <p>The Code outlines how the existing provisions will be applied to grant gas work licences and authorisations that will authorise the holder to work with hydrogen. The pathway in the Code is an interim pathway while national competencies are developed.</p> <p>It is not intended that technicians working on FCEV, and not undertaking other gas work, will need to have gas fitting qualifications. It is unclear what competencies and qualifications will be the most appropriate for workers in the emerging hydrogen industry. Consideration is being given to the <a href="#">Hydrogen Industry Workforce Development Roadmap 2022-2032</a> that identifies a number of new skills and occupations, including specialist roles such as Electrolyser Technicians and Fuel Cell Technicians.</p>	No change to Code



Topic Area	Feedback Summary	RSHQ Response	Updates to Code
	Feedback supported a nationally consistent approach where Queensland requirements are in line with other states and territories	<p>When available RSHQ will adopt national competencies for hydrogen roles. In the interim, for technicians working on fuel cell vehicles, the company may apply for a gas work authorisation (GWA) and authorise workers to work on vehicles under their authority. The company's in-house procedures and training can be used to apply for the GWA with no requirement for additional qualifications in gas fitting. Using this pathway enables a company to hold the GWA and individual employees can be authorised by the company to work under the GWA (no requirement for each employee to apply for a GWA).</p> <p><i>Hydrogen Operating Plant - Refuellers, Pipelines and Distribution Systems</i> Hydrogen operating plant have no mandated competencies or qualification requirements, however the UEG Gas Industry Training Package has been updated to include hydrogen in the Certificate II, III and IV in Gas Supply Industry Operations. Operators may utilise these qualifications and competencies to meet training requirements under their Safety Management System. See link to competency package here: <a href="https://www.australianindustrystandards.org.au/projects/ueg-hydrogen-technology/">https://www.australianindustrystandards.org.au/projects/ueg-hydrogen-technology/</a></p>	
<b>Safety of Gas Systems</b>	Some responses raised concerns that gas system and vehicle owners do not have the technical knowledge to ensure their gas system is safe.	<p>There are current obligations for owners of gas systems and vehicle owners to ensure their gas system is installed, operated and maintained in a safe manner. It is not intended or expected that the user of a gas system will have the technical knowledge of the design or installation aspects of the system. The owner meets their obligations by employing suitably qualified person to install and maintain their gas system in line with manufacturer's instructions and ensuring they receive certification.</p> <p>The Code provides information for importers, designers and installers of gas systems to be able to have devices approved and installed. Further information for gas system owners has been added.</p>	Code has been updated to clarify how the owner ensures the safety of the gas system is maintained.



Topic Area	Feedback Summary	RSHQ Response	Updates to Code
<b>Supplying hydrogen in a distribution system, including blends over 15%.</b>	<p>Feedback noted that:</p> <ul style="list-style-type: none"><li>- The principles of AS/NZS 4645 can be applied to a network with higher concentrations of hydrogen</li><li>- Industry preference is for AS/NZS 4645 to be updated to allow for distribution systems with more than 15% hydrogen</li><li>- Formal Safety Assessments are already a requirement</li></ul>	<p>A legislative amendment is proposed to enable supply of hydrogen in distribution networks that does not comply with the mandatory standard (AS/NZS 4645). RSHQ acknowledges that the principles of the standard can be applied for gas that is outside the scope and recommends the standard is used as a reference when designing the system and conducting the formal safety assessment.</p> <p>For distribution system operating plant, the formal safety assessment is required as part of the safety management system (s675(1)(e) of the P&amp;G Act). The Chief Inspector is to be notified when supply is outside the scope of the mandatory standard.</p> <p>RSHQ participates in the Standards Australia committee for the AS/NZS 4645 series of standards. There is a current project underway to remove the 15% limitation from the AS/NZS 4645.1 standard. When the limit is removed the requirement to notify the Chief Inspector will cease as the supply will be able to comply with the mandatory standard.</p> <p>Operators conducting formal safety assessments through this approach must ensure the team involved is appropriately qualified to identify potential hazards, assess the risk and implement suitable controls.</p>	<p>No change to proposed amendment.</p> <p>More guidance standards added to Appendix 4</p>
<b>Fuel Gas Delivery Network (FGDN) Operating Plant</b>	<p>Feedback was generally supportive of all FGDN being managed as operating plant</p> <p>There was a question about safety requirements.</p>	<p>FGDN are not gas systems, gas devices or gas distribution systems, but are prescribed as a category of operating plant under the P&amp;G Act. A FGDN may consist of:</p> <ul style="list-style-type: none"><li>• A fuel gas dispensing activity</li><li>• Storage, transport and delivery of fuel gas to a consumer in a container.</li></ul> <p>Fuel gas may be supplied through a FGDN <b>to</b> a distribution system, this currently occurs with many LPG fuel gas delivery networks.</p>	<p>No change to Code</p>



Topic Area	Feedback Summary	RSHQ Response	Updates to Code
		<p>In this case the FGDN and gas distribution system are different categories of operating plant. The gas distribution network must comply with AS/NZS 4645, or, for hydrogen systems, the process outlined in the Code section 5.5.</p> <p>Safety Requirements</p> <ul style="list-style-type: none"><li>- Sections 696 and 697 of the P&amp;G Act s696 and s697 apply to operating plant, including hydrogen FGDN, however there are currently no relevant safety requirements listed in Schedule 2 of the P&amp;G Safety Reg.</li><li>- Relevant Australian Standards have been listed in Appendix 4 of the Code and may in future be listed as preferred standards (i.e., AS ISO 19880 series for refuellers).</li><li>- Appendix 4 also includes some international standards for guidance, including the UK Energy Institute's "Guidance on hydrogen delivery systems for refuelling of motor vehicles, co-located with petrol fuelling stations"</li></ul>	
<b>Production</b>	<p>Several respondents noted that it is somewhat impractical to exclude production from a facility where it is an integral part of the process.</p> <p>Clarification has been requested in relation to requirements for smaller production facilities (i.e., sites below 10% MHF threshold)</p>	<p>RSHQ acknowledge the practical issues of excluding a single part of the process from the regulatory scope.</p> <p>To enable a holistic safety management approach, it is recommended production activities located at operating plant are included in the safety management system for the operating plant.</p> <p>While this aspect may be regulated by RSHQ and/or WHSQ, a single safety management system is able to meet the requirements of both safety frameworks.</p> <p>RSHQ is reviewing legislation and working with WHSQ to determine how production of hydrogen from non-petroleum sources is to be regulated.</p>	<p>The scope of the Code updated to note where hydrogen production occurs at an operating plant the production process should be included in the safety management system.</p>



Topic Area	Feedback Summary	RSHQ Response	Updates to Code
<b>Scope</b>	<p>Several areas of clarification were sought in relation to the scope including:</p> <ul style="list-style-type: none"><li>- Hydrogen storage</li><li>- Major Hazard Facilities</li><li>- Marine vessels</li><li>- Rail applications</li><li>- Transport of hydrogen</li></ul>	<p>Storage of hydrogen as a fuel gas is operating plant, either a FGDN (e.g., at a refueller or in transport containers) or part of a distribution pipeline or system (e.g., at a blending facility).</p> <p>Rolling stock, rail applications, marine applications and marine vessels are not excluded from the scope of the P&amp;G Act, with requirements for gas device approval and gas work requirements applying to hydrogen fuel cells used in these activities.</p> <p>Rolling stock is defined in National Rail Law as a vehicle, however the definition of vehicle in the P&amp;G Safety Reg does not include rolling stock. Therefore, at this stage, any fuel cell gas systems in rolling stock will be regulated as a portable gas system.</p> <p>RSHQ do not regulate transport of dangerous goods on the road. However, ADG has been added to Appendix 4 as a guidance document</p>	<p>“Road and Rail Delivery Networks” in Figure 1 changed to “Fuel Gas Delivery Network” to align with terminology in legislation.</p> <p>Information on Rail Safety legislation added to Appendix 2 of the Code.</p>
<b>WHS and P&amp;G Legislation</b>	<p>Feedback queried how the interaction between RSHQ and WHSQ would work in practice and how the risk management principles of “As Low as Reasonably Practicable” (ALARP) and “So Far as Is Reasonably Practicable” (SFARIP) should be applied.</p>	<p>ALARP and SFARIP principles are very similar and strive for the same effect. While there may be nuances in the legal application of each, proponents should recognise achieving ALARP is not achieving a number but ensuring risk is as low as reasonably practicable.</p> <p>Most hydrogen activities will have obligations under both <i>Work Health and Safety Act 2011</i> and P&amp;G Act and both principles should be considered and achieved. If practicable measures can be taken such that risk can be lowered, then those measures must be taken.</p> <p>Obligations under both Acts must be met, a single safety management system may be used to satisfy related safety management requirements.</p>	<p>No change to Code</p>



Topic Area	Feedback Summary	RSHQ Response	Updates to Code
		RSHQ and Office of Industrial Relations (WHSQ) are parties to a Memorandum of Understanding that outlines how the agencies will regulate fuel gas sites. Generally, RSHQ are the lead regulator unless the site is a major hazard facility.	
<b>Definitions</b>	More clarity was sought on some definitions and processes	<p><b>Suitably Qualified Engineer</b> definition has been updated and added to the definitions table. RSHQ believe that this term adequately outlines requirements for persons involved in the design of gas systems.</p> <p>Two new terms were added to simplify the device approval pathways</p> <ul style="list-style-type: none"><li>- <b>Designed and Packaged System</b> and</li><li>- <b>Construct and Install in Place</b></li></ul>	<p>Definition table updated; terminology updated to reflect requirements that RPEQ engineers must have accreditation in relevant areas.</p> <p>Clause 6.2, Table 4 and Figure 2 updated with new gas device terms.</p>
<b>Reference Standards and Guidance Documents</b>	Respondents noted a number of additional guidance documents that could be referenced	<p>RSHQ acknowledge the vast number of documents that exist internationally and can be used in the design of hydrogen gas devices, systems and facilities.</p> <p>The Code calls up Australian Standards as reference standards for gas device and system design and provides further reference to Australian Standards and other guidance information, such as State Code 21, in Appendix 4.</p> <p>Appendix 4 also lists some international standards that may provide useful guidance. It should be noted these documents are not written for Australian context and local requirements need to be considered when utilising these for design. The UN regulation 134 for hydrogen vehicles is the only international standard called up as a reference standard.</p>	<p>Appendix 4 of the Code has been updated to include additional standards and guidance material.</p>



Topic Area	Feedback Summary	RSHQ Response	Updates to Code
		<p>RSHQ understands that additional Australian standards are being developed and these will be reviewed and included in the Code during a periodic review, if applicable.</p> <p>Many international jurisdictions have general hazardous chemical facility documents proponents may find beneficial. Appendix 4 is not an exhaustive list and designers may find additional standards that they apply in design. Appendix 4 is a limited list of standards and codes that may be beneficial.</p> <p>The following standards have been added to Appendix 4:</p> <ul style="list-style-type: none"><li>- Guidance on hydrogen delivery systems for refuelling of motor vehicles, co-located with petrol fuelling stations (published by Energy Institute, London)</li><li>- ANZIGA Publications of EIGA documents<ul style="list-style-type: none"><li>o Environmental Impacts of Hydrogen Plants</li><li>o Gaseous Hydrogen Installations</li><li>o Hydrogen Cylinders and Transport Vessels</li><li>o Hydrogen Pipeline Systems</li><li>o Hydrogen Vent Systems for Customers Applications</li><li>o Best Available Techniques for Hydrogen Production by Steam Methane Reforming</li></ul></li><li>- ADG</li><li>- State Code 21</li><li>- API 752 and 753</li></ul>	



\*INFORMATION ABOUT Section 15 process

**What is the “Section 15 process”**

Section 15 of the P&G Safety Reg states that a person must comply with a preferred safety requirement. The section allows compliance to be achieved by directly complying with the requirements or by giving the chief inspector a notice that states the person is not complying with the document for the activity or thing; and has written evidence showing the level of risk for the activity or thing to which the safety requirement applies is equal to or less than the level of risk that would be achieved for the activity or thing by complying with the document.

**What are safety requirements:**

Prescribed safety requirements are in schedule 2 of the P&G Safety Reg.

Where there are no safety requirements under the P&G Act, the operator is to determine the most appropriate standards and risk management strategies and document these in the SMS or device design documentation.

**When should the Section 15 process be used**

When a safety requirement exists but is not followed

**Exceptions**

The Code proposes an alternate process following legislative amendments that call up the Code as a safety requirement. Under this alternate process, a GDAA holder will be able to review and approve hydrogen gas devices and systems that do not comply with safety requirements if a reference standard is used and a risk report is submitted as part of the technical submission. Essentially there must be written evidence showing the level of risk for is as low as reasonably practicable and all relevant preferred and reference standards have been considered in the design.