

Guide to design registration requirements for high-risk pressure equipment

High-risk pressure equipment is often installed at 'operating plant' such as petroleum and gas facilities and drilling rigs. In such cases, certain requirements of both the Petroleum and Gas and the Work Health and Safety laws may apply to the equipment. This Guide provides advice for operators of high-risk pressure equipment associated with operating plant about how to comply with design registration and related requirements. This Guide was jointly prepared by the Department of Justice and Attorney-General and the Department of Natural Resources and Mines.

The aim of the *Work Health and Safety Act 2011* (the WHS Act) is to ensure the health and safety of workers and others by eliminating or reducing workplace risks, as far as is reasonably practicable, including through the provision and maintenance of safe plant.

The aim of the *Petroleum and Gas (Production and Safety) Act 2004* (the PG Act) is to facilitate and regulate the carrying out of responsible petroleum activities and the development of a safe, efficient and viable petroleum and fuel gas industry. This includes ensuring the health and safety of workers and others at operating plant by eliminating or reducing risks to a level that is as low as reasonably practicable.

Plant design

The WHS Act imposes a specific duty on designers of plant to ensure that the plant is designed without risks to the health and safety of workers or others who use, manufacture, supply or install the plant at the workplace. Information on the safe design of plant is available at www.safeworkaustralia.gov.au

Similarly, the PG Act imposes an obligation on designers of plant or equipment for use at an operating plant to take all reasonable steps to ensure that the plant or equipment complies with any safety requirement that may apply under the Petroleum and Gas (Production and Safety) Regulation 2004 (the PG Regulation). In addition, the PG Act requires installers of plant or equipment at an existing or proposed operating plant to comply with any relevant safety requirement under the PG Regulation and to certify the installation complies with all relevant safety requirements before making the plant or equipment operational.

Schedule 1 of the PG Regulation lists standards, codes and other documents as 'mandatory' or 'preferred' safety requirements for certain activities and things (including plant such as pressure vessels). For example, *AS 1210-2010 Pressure vessels* is listed under Schedule 1, Part 6 of the PG Regulation as a preferred standard for materials, design, manufacture, testing, inspection, certification and despatch of fired and unfired pressure vessels.

Designers of vessels have the option of using international standards such as API, ASME and ISO codes if AS1210 is not adopted. Where an alternative to a preferred standard is chosen, the person must, notify the chief inspector petroleum and gas under section 7 of the PG Regulation and have written evidence demonstrating why the chosen alternative is equal to, or better than, the preferred standard (e.g. why the international standard used is equal to, or better than, AS 1210).

Design registration

Under Schedule 5 of the Work Health and Safety Regulation 2011 (WHS Regulation), certain plant designs and items of plant must be registered before they can be used at the workplace. Design registration aims to ensure that high risk plant has been designed safely in accordance with relevant and published technical standards. These registration requirements are restated in the *Managing the risks of plant in the workplace Code of Practice 2013* (the Plant Code).

The Plant Code is listed under Schedule 1, Part 1 of the PG Regulation as the 'preferred' standard for drilling rigs. Where the Plant Code is adopted as the standard, any high-risk pressure equipment associated with a drilling rig (e.g. the accumulator unit) will need to be design registered.

There is no specific provision in the PG Act to register the design of high-risk pressure equipment at operating plant. This means, where the PG Act does not apply (e.g. if high-risk pressure equipment is individually commissioned and operated before the operating plant is commissioned), the registration requirements of the WHS Regulation will apply. While plant designs do not need to be registered at operating plant, such as pipeline facilities or petroleum processing facilities, high-risk pressure equipment used during the construction phase of operating plant must be design registered.

High-risk pressure equipment requiring design registration under the WHS Regulation includes:

- pressure equipment, other than pressure piping, and categorised as hazard level A, B, C or D according to the criteria in Section 2.1 of AS 4343: *Pressure equipment – hazard levels*
- gas cylinders covered by Part 1.1 of AS 2030.1-2009: *Gas cylinders - General Requirements* except for
- any pressure equipment – other than a gas cylinder – excluded from the scope of AS 1200:2000: *Pressure equipment – see section A1 of Appendix A to AS/NZS 1200:2000.*

A person with management or control of plant at a workplace must register a plant design if:

- it has not already been design registered (in Queensland or under a corresponding WHS law in another state)
- or
- the plant design has been altered by modifying the plant and the alterations to the design may affect health and safety.

Verification of plant design

To register a plant design, it must be verified by a competent person who must provide a statement that the design has been produced in accordance with published technical standards or engineering principles specified by the designer.

A design can only be verified by a person who is eligible to be a design verifier under the WHS Regulation. The types of people who would be competent to verify the design of plant may include someone who:

- has educational or vocational qualifications in an engineering discipline relevant to the design to be verified
- has knowledge of the technical standards relevant to the design to be verified

- has the skills necessary to independently verify that the design was produced in accordance with the published technical standards and engineering principles used in the design
- was not involved in the production of the design or engaged by the design company at the time the design was developed unless the design was certified by a body that is accredited or approved by the Joint Accreditation System—Australia and New Zealand or an equivalent overseas body to undertake conformity assessments of the design against the relevant technical standards.

For example, a design verifier could include someone who is a registered professional engineer under the *Professional Engineers Act 2002*.

Use [Form 14 - Application for registration of plant design](#) to register a plant design.

Duration of design registration

Registration of plant design is for an unlimited duration unless the design has been altered or modified in a way that may affect health and safety.

Post registration

When the design is registered, the WHS regulator will issue a plant design registration number. This number must then be given to the manufacturer, importer or supplier of plant. These duty holders must ensure that the design registration number is provided to the person with management or control of plant at the workplace. This person must then ensure that the design registration number is kept readily accessible in the vicinity of the plant at all times. A reliable way to achieve this is to permanently mark the design registration number on the plant.

If a registered plant design is altered or modified in a way that may affect health and safety, the altered design must also be registered.

Examples of published technical standards relevant to pressure equipment are provided in Attachment 1.

Further information

A complete list of published technical standards that provide guidance on the design, manufacture and use of certain types of plant is provided in Appendix C of the [Managing the risks of plant in the workplace Code of Practice 2013](#) available at www.worksafe.qld.gov.au

Mandatory and preferred standards for safety requirements under the PG Regulation are provided in Schedule 1 of the [Petroleum and Gas \(Production and Safety\) Regulation 2004](#) available at www.dnrm.qld.gov.au

Contacts for information

- Further information on plant registration is available at www.worksafe.qld.gov.au or by phoning Licensing and Advisory Services on 1300 655 986.
- Further information on petroleum and gas safety is available at www.dnrm.qld.gov.au or by phoning the Petroleum and Gas Inspectorate on:
 - Northern region (Townsville) (07) 4447 9274
 - Central region (Rockhampton) (07) 4936 1088
 - Southern region (Woolloongabba) (07) 3330 4241

Technical standards for pressure equipment

Extract of Appendix 3 of the Plant Code

Reference number	Standard title	Design	Make	Use
AS/NZS 1200:2000	Pressure equipment	✓	✓	✓
AS 2593:2004	Boilers – safety management and supervision systems	✓		✓
AS 2971:2007	Serially produced pressure vessels	✓	✓	
AS 3920:1-1993	Assurance of product quality – pressure equipment manufacture	✓	✓	
ASME I	Power boilers	✓	✓	
ASME II	Materials	✓	✓	
ASME V	Non-destructive examination	✓	✓	
ASME VIII-1	Pressure vessels	✓	✓	
ASME VIII-2	Pressure vessels – alternative rules	✓	✓	
ASME VIII-3	Alternative rules for construction of high pressure vessels	✓	✓	
ASME IX	Welding and brazing qualifications	✓	✓	
ISO/EN 13458 (Series)	Cryogenic vessels – static vacuum insulated vessels	✓	✓	✓

Extract of Schedule 1, Part 6, of the PG Regulation

Reference number	Standard title	Design	Make	Use
AS 1210-2010	Pressure vessels – materials, design, manufacture, testing, inspection, certification and despatch of fired and unfired pressure vessels	✓	✓	