

Rig MythBusters Tech Sheet # 1

Understanding Pressure Vessel Compliance & Management

TYPES OF PRESSURE VESSELS

On a standard CSG Workover Rig the following Pressure Vessels will commonly be operating:

- Air Receivers
- Accumulator Bottles (Koomeys)
- Pulsation Dampeners
- Separators (Air/Oil Separators on Air Packs, Compressors, Boosters)
- Degassers (occasionally, but more likely to be found on drilling rigs)

HAZARD RATINGS

As per Australian Standards Pressure Vessels are divided into categories based on their Hazard Rating: **A being the Highest Risk and E Being the Lowest**. Generally, a workover rig will not have any Hazard A rated vessels but will have B to E rated vessels.

OBLIGATIONS OF THE EQUIPMENT OWNER

As the equipment owner/operator (Ops Manager, Superintendents, Assets Managers, RM's etc) it is your obligation to manage the equipment as it is classed as "High Risk" by WHS Regulations. This involves the following:

- Plant Registering the Equipment (if it is Hazard Rating A, B, C).
- Operating the equipment within its design parameters.
- Conducting regular inspection/surveillance of the equipment (standard rig crew inspections and maintenance).
- Ensuring it is inspected when required by suitably qualified inspector (either AICIP or API qualified).
- Maintaining equipment records & registers of the equipment.

SCHEDULED INSPECTIONS

A common question is how often must I have my Pressure Vessels inspected? The answer is as follows: Pressure Vessels are designed to withstand a certain number of "cycles" but this is difficult for an operator to determine so we use a combination of the Hazard Rating and the Inspection Schedule recommended in AS 3788.

To simplify things, we shall group all the Pressure Vessels commonly found on a CSG workover rig together as they are all of a similar Hazard Rating (B, C, D) and none are a Hazard Rating A, therefore we can assess them all the same.

Essentially the Pressure Vessels must have an INTERNAL INSPECTION every 4 years & an EXTERNAL INSPECTION every 2 years. So therefore, we can say that **the Pressure Vessels require some type of inspection every 2 years**. With the use of NDT methods (Ultrasonic Thickness Measurements) we can inspect the internal surface of the Pressure Vessel without the need to open the Pressure Vessel up. This means that an INTERNAL & EXTERNAL INSPECTION can be conducted at the same time without interference to the equipment. Conducting Ultrasonic Thickness Readings every 2 years is also good engineering practice and maintains confidence in the equipment's internal integrity.



QUALIFIED INSPECTORS

Another common question is who is qualified to inspect the Pressure Vessels? This is ideally done by a reputable 3rd party inspection company. The Inspector must be a qualified and certified to AICIP as an In-Service Inspector (API is also an equivalent qualification that is less common but a recognised alternative).

Ensure the inspector holds current certifications by either requesting a copy of their certification or searching the AICIP database:

<https://aicip.org.au/inspector-find/>

It is an offence for a company or individual to conduct inspections if they are not suitably qualified.

RELEVANT STANDARDS

AS 4343 – Pressure Equipment – Hazard Levels
AS 3788 – Pressure Equipment
AS 1210 – Fired & Unfired Pressure Vessels
ASME Boiler & Pressure Vessel Code

OTHER FREQUENTLY ASKED QUESTIONS

Must I Pressure Test my Pressure Vessels every 10 years to 1.5 times Design Pressure?

No, this is not required. 1.5 times pressure testing is only required during fabrication, not once the Pressure Vessel is in service. The 10-year frequency is also not required. This statement is on a rig audit companies audit schedule and has become popular knowledge; however, it is incorrect.

Do I need to internally inspect my Accumulator Bottles at 12 years?

No, the 12-year frequency is the maximum allowable frequency for internal inspections of accumulator bottles if none other are performed. However, if the bottles are inspected every 2 years as recommended above then this is not required.

Can I inspect my own Pressure Vessels?

Unless you hold AICIP or API certification then no. There is a WHS Tier C monetary fine if the Pressure Vessels are inspected by a non-qualified person.

For all your Inspection, NDT, QA & Auditing needs please contact us at Edgepoint Services.

www.edgepointservices.com.au

A handwritten signature in black ink, appearing to be "AC" or "Alistair Coote".

Alistair Coote

Edgepoint Services Pty Ltd Director/Lead Inspector