



Pressure Energy
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Pressure Energy Standard

1. Introduction

1.1 Purpose

The purpose of this standard is to provide guidance on how to:

- Manage the risks associated with pressure energy. This is supported by the Pressure Energy Bow Tie Risk Assessment.
- Implement the Pressure Energy Core Mandatory Requirement (CMR). This is supported by CMR FRM 003a Pressure Energy Poster.

1.2 Scope

In scope - All MPC Kinetic controlled work sites.

Out of Scope – Works outside of MPC Kinetic control.

1.3 Authorised User

All Field Employees and Contractors who are:

- Authorised Persons.
- Authorised to work on a pressure system under a permit to work.

2. Critical Control Implementation

2.1 Requirements for pressure systems

2.1.1 Minimum requirements for pressure systems

All pressure systems must:

- Be designed by a competent person
- Be fitted with a calibrated pressure relief valve
- Have rated equipment controlling the venting of the system
- Where required by legislation be registered.

2.1.2 Who is an Authorised Person

The competency requirements to Authorise a person to work on a pressure system or equipment must be determined based on:

- The local legislative requirements
- Verification of competency
- Client requirements.
- The relevant skills required to work on the type of system or equipment.

The Authorisation requirements must be clearly documented in the relevant work method statement or management plan.



NOTE: Refer to:

- TRA PRO 002 Verification of Competency Procedure

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2.1.3 Maintenance and testing schedules

Pressure systems and equipment must have maintenance and testing schedules in place.

The maintenance and testing schedules must:

- Meet the relevant legislation and standards
- Meet the Original Equipment Manufacturer (OEM) recommendations
- Meet MPK requirements, including:

Level of Maintenance	Interval
Level 1	Pre and Post job
Level 2	12 months
Level 3	5 years

2.1.4 Level 1 maintenance requirements

Level 1 maintenance requires the Authorised person to:

- Clean the equipment
- Visually inspect threads
- Replace O-rings with OEM parts, if damaged
- Conduct a function test at working pressure
- Conduct a pressure test
- Check OEM serial numbers and bands are legible. Repair with low stress stamps, if required
- Update the equipment history file when complete.

2.1.5 Level 2 maintenance requirements

Level 2 maintenance requires the Authorised person to:

- Complete a strip down of all connections, manifolds, valves and components
- Clean the equipment
- Visually inspect all sections including threads and sealing surfaces
- Replace all O-rings with new OEM parts
- Conduct pressure test
- Conduct function test at working pressure (WP), if it has moving parts
- Check OEM serial numbers and bands are legible. Repair with low stress stamps, if required.

After maintenance has been completed:

- Update the equipment history file
- Re-band with MPCK tracking number
- Fill out certificate of service.

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2.1.6 Level 3 maintenance requirements

Level 3 maintenance requires the Authorised person to:

- Complete a strip down of all connections, manifolds, valves and components
- Clean the equipment
- Visually inspect the equipment for obvious damage
- Reassembly using new OEM parts
- Conduct pressure test
- Conduct function test at working pressure (WP), if it has moving parts
- Check OEM serial numbers and bands are legible. Repair with low stress stamps, if required.

A Third-Party inspection company must:

- Conduct testing as per legislative and standard required for register plant
- Conduct an MP / NDT inspection on steel welds
- Conduct random thickness testing on all components using x-ray or ultrasonic methods
- Witness the result of the pressure and function tests
- Issue Certificate of Conformity.

After the maintenance and the third-party inspection has been completed, update equipment history file and equipment registers.

2.1.7 Develop Safe Work Method Statement

A documented Safe Work Method Statement (SWMS) or equivalent must be developed to eliminate or minimise the risks associated with working on pressurised systems.

The content of the risk assessment must be developed after reviewing the hazards, risks and control measures documented in the relevant project HSE Risk Register.

The hierarchy of risk controls must be applied to ensure the risks are minimised so far as is reasonably practicable.

Safe Work Method Statement must consider:

- Methods to control uncontrolled pressure release
 - Authorisation of Workers
 - Permit to work requirements.
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2.2 Manage pressure testing

2.2.1 Testing equipment requirements

All pressure testing equipment must:

- Be compatible for the system
 - Be rated for the test being done
 - Be certified for the work.
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- 2.2.2 Confirm the testing process** Prior to any pressure testing, Authorised persons must confirm:
- The testing process meets the relevant standards
 - The testing process meets client requirements, including any approvals
 - Hold points are included to make sure all critical controls are in place
 - The battery limits of testing are clearly identified.



NOTE: Refer to:

- CMR FRM 004b Pressure Energy Testing Hold Point Checklist

- 2.2.3 Manage connection failure of flexible hoses** If there is a risk of connection failure on flexible lines, rated restraint equipment must be secured to limit any uncontrolled movement in the failure.

- 2.2.4 Set-up exclusion zones** Authorised and unauthorised exclusion zones must be determined and set-up before pressure testing.

The exclusion zones will be calculated based on:

- The relevant standards
- The pressure stored in the system
- The volumes of the system
- Method of testing – e.g. hydrostatic, pneumatic etc.
- The location of the testing e.g. workshop or site.

The zones must establish:

- The testing area where authorise persons can operate
- The zone where un-authorise person must be excluded from

The exclusion zones must be clearly marked out on the site using barriers and signage and notifications issued to potentially affected parties.

During any testing, Authorised Persons must position themselves away from potential line of fire hazards e.g. Projectiles.

2.3 Manage pressure energy isolation

- 2.3.1 Isolate the energy** All pressure systems must have the energy isolated and energy dissipated prior to breaking containment.

Authorised personnel must complete the isolation by:

- Positively identifying all the sources of pressure energy
- Identifying all isolation points/valves and bleed points
- Secure the isolation with a lock out device
- Dissipate all stored pressure energy
- Attach danger tags and notices.

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2.3.2 Permit to work requirements

All work that requires isolation of pressure energy must be conducted as per requirements of Isolation Standard – WHS CMR STD 006.

The isolation permit must be issued in accordance with WHS PRO 056 Permit to Work Procedure or any client requirements.

The permit must be in writing and as a minimum contain:

- A record of isolation points
- Details of the locks attached
- The name of the person who conducted the isolation
- The name of the person who verified the isolation
- A list of personnel who will be working on the equipment.



NOTE: Refer to:

- WHS PRO 056 Permit to Work

2.4 Emergency Rescue Requirements

2.4.1 Develop procedures

Emergency response procedures must be developed based on the risks associated with the potential unplanned release, ignition or reaction of the pressure system.

The potential emergencies related to pressure systems, include:

- Explosion
- Impact or projectile injuries
- Fire
- Burns.

2.4.2 Implement procedures

Emergency response procedures must be implemented on-site.

This includes:

- Communicating procedures to the relevant site personnel
- Confirming or arranging specific emergency response training
- Arranging relevant emergency equipment.

The emergency procedures must be checked they are working effectively. This includes:

- Undertaking drills or scenario testing
- Conducting regular inspections