Integrated Management System

Contractor Management Guidance Document

Hazardous Energy Isolations

Document Reference:	**IMS-08.01.05-CMG-08**
Revision Number:	**1**
Date Issued:	**January 2026**
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1. INTRODUCTION

Contractor Guidance Documents (CGD) are designed ensure that Contractors, Subcontractors and Service Providers working at the Company's Petrol Filling Stations are aware of the hazards associated to working at these locations and the Company's basic requirements for specific types of work that have been identified as involving significant risk (**Major Work**).

The Company requires Contractors, Subcontractors and Service Providers to ensure that the Safe Methods of Working and Risk Assessment and Method Statements (RAMS) produced for an assigned scope of work include relevant aspects from the guidance provided to ensure that:

- Work site and task specific risks are identified risks
- Suitable and sufficient risk reduction measures (i.e., controls) are identified and detailed in the work control documents; and
- Assigned work activities are:
    - Effectively described; and
    - Performed safely

Note 1.1: For the purpose of this Contractor Guidance Document, Contractors, Subcontractors and Service Providers will be referred to collectively as **Contractors**.

Contractor Guidance Documents are considered a useful guide to Contractors regarding Company expectations for the safe performance of work, as they take account of the potential hazards present at a Petrol Filling Station and set minimum standards for the performance of work tasks that the Company is not sufficiently knowledgeable of, or experienced in, to allow the development of suitable and sufficient Risk Assessment and Method Statements (RAMS).

The responsibility for ensuring work tasks are performed safely remains with the Contractor who must ensure that working practices are critically assessed, with due consideration given to the information provided in the Contractor Guidance Documents.

Note 1.2: Contractor Guidance Documents **DO NOT** override or relieve Contractors of their statutory obligations under applicable legislation.

2. PURPOSE

This Contractor Guidance Document details MFG's minimum expectations regarding the entry into a classified confined space at Company Petrol Filling Stations, to ensure that Contractors are aware of the expectation place on them both by the Client (i.e., MFG) and applicable legal obligations and are able to safely perform assigned work tasks.

Note 2.1: If clarification or further understanding of the content of this Contractor Guidance Document is required, Contractors must contact the HSE Manager (MFG) via HSE_Team@Motorfuelgroup.com.

3. GENERAL GUIDANCE

3.1 INTENT

The document is designed to provide guidance to Contractors who are awarded contracts to perform work requiring potentially hazardous source of energy to be physically isolated at a Company Service Station. This guidance document specifically details expectations regarding identification of sources of hazardous energy, physical isolation and de-isolation to ensure personal safety during the performance of work through effective Hazardous Energy Isolation.

3.2 WORK CONTROL

Work tasks assigned to Contractors will be assessed to identify potential hazards and the associated risk. Work identified as involving potential exposure to sources of hazardous energy will require an assessment to identify these sources and determine an efficient and effective method to safely and

effectively isolate each potential source of hazardous energy to allow work to performed without risk of harm.

Note 3.2.1: Typically, there will be no requirement to prepare, review, authorise and issue a Work Control Permit, however if an assessment identified exposure to work that involves significant risk (**Major Work**) for example hazardous energy isolation involving work at height or confined space entry a Work Control Permit will be required.

3.3 General Requirements

3.3.1 Hazardous Energy Isolations

Hazardous energy isolations will be installed by a trained and competent person (**Authorised Person**) who will be knowledgeable of the relevant hazardous energy isolation techniques, associated hazards, the required risk reduction measures (i.e., controls), and infrastructure and equipment shutdown requirements.

Note 3.3.1.1: Infrastructure and equipment will include, but may not be limited to:

- Storage tanks and associated piping systems
- Pumps and compressors
- Electrical equipment, including:
  - Lighting
  - Tank gauges
  - Power supplies
  - Electric Vehicle (EV) facilities; and
  - Car wash and jet wash

Hazardous energy isolations will be installed on infrastructure equipment prior to the repair, maintenance, replacement, entry, and/or servicing of such equipment, where the following could occur:

- Release of stored energy or harmful levels of electrical or thermal energy or chemicals; and/or
- The unexpected start-up or movement of mechanical components

When potential sources of hazardous energy identified the following measures will be implemented to physically isolate the source of energy and prevent inadvertent starting or activation of equipment:

- Affected personnel will be notified before hazardous energy isolation is applied
- Infrastructure equipment will be prepared for hazardous energy isolation by a person who is knowledgeable in shutdown requirements
- Isolation devices will, as necessary:
  - Be located and secured by an Authorised Person
  - Be secured in a **Safe** or **Off** position
  - Have tagout devices fitted to indicate that the operation or movement of the energy isolating device from the **Safe** or **Off** position is strictly prohibited
- Following installation of isolation devices any potentially hazardous stored or residual energy must be relieved, restrained or otherwise made safe

  Note 3.3.1.2: If there is a potential for re-accumulation of stored energy, a mechanism for identifying and/or relieving such energy throughout the period of the isolation will be established.
- Hazardous energy isolations will be:
  - Verified as secure and effective (bump tested); and
  - Documented using applicable reporting tool, for example using:
    - Clearance Certificate; or
    - Work Control Permit (WCP)

3.3.2 AUTHORISED PERSON

The assigned Authorised Person will:

- Be knowledgeable of the:
  - Purpose and importance of energy isolations in assuring a safe work environment
  - Potential sources hazardous energy
  - Techniques for isolating or controlling the energy
  - Types of energy isolation lockout or tagout devices, their use, and their significance
  - Responsibilities associated to the:
    - Installation and removal of hazardous energy isolations; and
    - Prohibition of starting or energising infrastructure equipment that is isolated from energy sources
- Notify affected personnel of the intention to install hazardous energy isolations and the purpose of the isolations

  Note 3.3.2: Affected Personnel are defined as individuals who:
  - Are required to use infrastructure equipment on which maintenance or servicing is being performed following energy isolations; or
  - Perform other work duties in an area where such maintenance or servicing is required
- Identify the hazardous energy isolations required to safely isolate infrastructure equipment
- Safely install the initial hazardous energy isolations
- Confirm that the:
  - Identified infrastructure equipment has been correctly isolated
  - Isolated infrastructure equipment is free of trapped or hazardous energy; and
  - Isolations are recorded (e.g., Clearance Certificate and/or Work Control Permit)

4. GENERAL GUIDANCE FOR CONFINED SPACE

4.1 HAZARD ASSESSMENT

If energy isolations are required the designated MFG Representative and Contractor (Job Supervisor) will carry out a hazard assessment at the work site, to determine the location of any required hazardous energy isolations. Where applicable, the assessment will include a review of current drawings or operating manuals to ensure that all potential isolation points are identified.

Note 4.1.1: Hazardous energy isolations must be utilised in the most efficient manner and provide effective containment and dissipation of all potential energy sources.

A Safe Method of Working (i.e., Clearance Certificate) is required prior to installing hazardous energy isolations and must be completed to the required standard by the Contractor (Job Supervisor) following the site hazard assessment.

Note 4.1.2: If the Contractor has produced work-specific RAMS that include the identified sources of energy isolations and the process (i.e., method to be used to isolate) the Clearance Certificate for the scope of work assigned to the Contractor, must include the energy isolations that need to be installed.

4.2 FIRST BREAK

The **First Break Policy** applies to piping and/or infrastructure equipment containing, or likely to contain, potentially hazardous sources of energy (e.g., liquid, vapour, pressure, electricity, etc.). Breaking into a pipeline or infrastructure equipment is any technique that may allow the potentially hazardous sources of energy to escape, for example:

- Unbolting a flange

- Unbolting in-line components such as valve or non-return (check) valve
- Cold cutting with a saw; or
- Disconnecting electrical supply

The minimum requirements for performing first break activities involving potentially hazard piping and/or infrastructure equipment are:

- Conduct work site hazard assessment and identify:
  - Potential work specific and work site specific hazards; and
  - Suitable and sufficient risk reduction measures (i.e., controls)
- Develop Safe Method of Working (i.e., Clearance Certificate) if hazardous energy isolation requirements are not recorded within the Contractors RAMS
- Clearly define risk reduction measures (i.e., controls), to include as necessary:
  - Physical isolation of all potential sources of energy; and
  - Purging, venting, and draining excess pressure
  - Verification of:
    - Effective isolation (bump test); and
    - Zero pressure in the piping and/or infrastructure equipment
  - Proper containment of any liquids released
  - Gas monitoring of the work site, if applicable
  - Use of proper tools for the task; and
  - Correct Personal Protective Equipment (PPE) for the task

    Note 4.2.1: First break activities may require the use of respiratory protection if there is a potential for exposure to a hazardous atmosphere.

Additional risk reduction measures (i.e., controls) may include, but are not limited to:

- Be aware of potential line of fire hazards
- Take precautions against trapped pressure:
  - Reduce tension on flange bolts to allow trapped pressure to be released away from the body / face; and
  - Do not assume that a pressure indicator provides an accurate indication of pressure
- Where necessary (e.g., confined space entry) continually monitor the atmosphere for hazardous vapours

4.3 Isolation Devices

4.3.1 Lockout Devices

Lockout devices will provide a positive means (e.g., a lock and key) to hold a hazardous energy-isolating mechanism in a safe position and prevent infrastructure equipment from being energised. Lockout devices will:

- Only be used for energy isolations
- Be uniquely keyed and designed to withstand the conditions in which they are used; and
- Include a means of identifying the person responsible for installing and removing the device

4.3.2 Tagout Devices

Tagout devices will:

- Allow the recording of pertinent information relating to the lockout
- Include a warning, for example **Do Not Operate** or **Do Not Energise**; and

- Be substantial enough to prevent inadvertent removal

4.4 TAGOUT ONLY ISOLATIONS

A tagout isolation (tags only) may be used if:

- Applicable legal obligations allow for tagout only isolations
- The infrastructure equipment is not configured to accept a physical lockout device
- The tagout process provides protection from inadvertent energising as effectively as a lockout process; and
- Approved by the MFG HSE Manager or Risk & Compliance Manager

If tagout only isolations are approved for use, consideration will be given to providing additional risk reduction measures (i.e., controls), for example:

- Removal of:
  - The valve handle to reduce the likelihood of inadvertent operation
  - A circuit element or component, installed between the energised and the isolated systems
- Restricting access to system control switches

4.5 PERSONAL LOCK

Personal Locks refer to the isolation devices that are under the control of the Authorised Person, these will be:

- Installed by an assigned Authorised Person
- Uniquely keyed; and
- Installed and removed by an assigned Authorised Person

The Authorised Person assigned Authorised Person (e.g., Contractor) will:

- Use their Personal Lock(s) to install the initial isolations
- Confirm:
  - The required hazardous energy isolations:
    - Have been made correctly; and
    - Are sufficient to allow the identified work to proceed safely
  - The effectiveness of the energy isolations (e.g., bump test); and
  - Verify zero energy in the isolated infrastructure equipment
- Will remove their Personal Lock(s) on completion of the assigned work
- Record the hazardous energy isolations (e.g., Clearance Certificate or Work Control Permit)

4.6 ENERGY ISOLATIONS

4.6.1 SINGLE POINT ENERGY ISOLATIONS

A single point energy isolation is the simplest and most direct procedure for controlling infrastructure equipment and will only be used when a single point energy isolation provides adequate and effective safeguards to personnel.

Single point isolations enable the assigned Authorised Person to secure a lockout device and/or the infrastructure equipment isolation point with a single personal lock. The Authorised Person will:

- Identify the infrastructure equipment to be isolated
- Carry out a work site hazard assessment to identify the risk reduction measures (i.e., controls) needed to effectively control the identified hazards

- Advise affected personnel of the scope of work and the infrastructure equipment to be de-energised and isolated
- Safely:
  - Shutdown the infrastructure equipment
  - Carry out any flushing, draining, or purging required
  - Contain and dispose of any drained or purged product as specified in the Safety Data Sheet (SDS)
- Safely install a personal lock and verify:
  - The effectiveness of the energy isolation (e.g., bump test); and
  - Zero energy in the infrastructure equipment

  Note 4.6.1.1: Do Not use a pressure gauge as a positive indicator of pressure within a system.
- De-energise the breaker or isolate the lockout point and check for zero energy

  Note 4.6.1.2: A qualified electrician may be required to complete electrical isolations.
- Not start work on isolated infrastructure equipment, until effective isolation has been confirmed.

If there are requirement other Contractors (Job Crews) to work on isolated infrastructure equipment the Authorised Person will confirm:

- The infrastructure equipment is safely isolated to allow others to perform their assigned task; and
- Those required to perform additional work on the isolated infrastructure equipment are aware of any work site or process hazards and how to deal with them

4.6.2 Initial Energy Isolations

When hazardous energy isolations are required on infrastructure equipment the assigned Authorised Person will install their personal locks on the equipment as the initial energy isolation. When installing the initial isolations, the assigned Authorised Person will:

- Discuss the scope of work with the Job Crew Supervisor, where applicable
- Based on the scope of work perform a work site hazard assessment to identify:
  - Infrastructure equipment to be worked on
  - Energy sources requiring isolation to ensure Job Crew safety:
    - Electrical
    - Pressure (pneumatic, hydraulic, gas)
    - Mechanical motion
    - Mechanical tension (springs)
    - Chemical
    - Thermal (heat and radiation)
    - Gravity
  - Potential hazards, for example:
    - Job specific (e.g., manual handling, chemical exposure, etc.); and
    - Lockout specific (e.g., trapped pressure, pinch points, line of fire, etc.)
  - Required risk reduction measures (i.e., controls), for example:
    - Job specific (e.g., proper lifting technique, PPE, etc.)
    - Lockout specific (e.g., draining, venting , purging, chaining, etc.)
  - The main energy isolation points for each energy source

  Note 4.6.2.1: If the hazard assessment determines that energy isolations are not required, the Authorised Person will ensure the following requirements are met:
  - A task-specific Method Statement or Safe Method of Working must be in place:

  - Detailing the steps involved in work
  - Identifying the hazards and associated hazard controls; and
  - To establish the Job Crew's duties and responsibilities
- Install the required isolations to effectively isolate the infrastructure equipment
- Where required secure tags to the isolation devices detailing the required information
- Safely dissipate stored energy (e.g., purge, vent, etc.) and verify:
  - The effectiveness of the energy isolations (e.g., bump test); and
  - Verify zero energy within the isolated infrastructure equipment

  Note 4.6.2.2: Do not rely on a Pressure Indicator Gauge as a positive indicator of pressure retained within a system.
- Record the initial energy isolations (e.g., Clearance Certificate or Work Control Permit)

4.7 HAZARDOUS ENERGY ISOLATION REMOVAL

4.7.1 GENERAL

On completion of work requiring hazardous energy isolation:

- Infrastructure equipment will be correctly reinstated
- Guarding will be replaced
- Non-essential items will be removed from the work site, and
- Affected personnel will be advised that the isolation devices will be removed; and
- Removal of isolation devices will be recorded (e.g., Clearance Certificate or Work Control Permit)

Where applicable, isolation devices will be removed in sequence (e.g., **first on** are **last off**) by the assigned Authorised Person.

4.7.2 REMOVAL OF PERSONAL LOCKS

On completion of assigned work tasks performed by individuals on infrastructure equipment the following minimum requirements apply to the removal of Personal Locks:

- Personal Locks will be removed from the isolation devices as soon the assigned work has been completed
- If work is not complete, a **Do Not Operate** sign should be hung on the infrastructure equipment and affected personnel advised that the isolation device(s) must remain in place until the required work has been completed
- Following removal of Personal Locks affected personnel will be advised that the isolation devices have been removed; and
- The removal of personal locks will be recorded (e.g., Clearance Certificate or Work Control Permit)

4.7.3 REMOVAL OF INITIAL ENERGY ISOLATION DEVICES

Hazardous energy isolations installed as initial isolations will be the last isolation devices removed from infrastructure equipment. As a minimum the following safeguards must be applied to the removal of the initial isolations:

- The assigned Authorised Person who installed the initial isolation devices is responsible for removing the devices when all work activities have been fully completed
- The Authorised Person will:
  - Confirm with affected personnel that all required work has been completed
  - Verify all personal locks have been removed from the infrastructure equipment

- Carry out a visual inspection to:
  - Verify that the infrastructure equipment is ready in all aspects for the initial isolation devices to be removed; and
  - Identify the sequence for removal of the isolation devices
- Remove the initial isolation devices
- Record the removal of the isolation devices (e.g., Clearance Certificate or Work Control Permit)
- If authorised to do so, prepare the infrastructure equipment for a return to normal operations
- Advise affected personnel:
  - That the initial energy isolation devices have been removed; and
  - Of the current operational status of the infrastructure equipment following removal of the initial isolation devices

4.7.4 Removal of Locks By Person Other Than Lock Installer

If the Authorised Person who installed an isolation device is not available, the designated MFG Representative will:

- Make every reasonable effort to contact the individual who installed the lockout device
- Conduct a field review of the infrastructure equipment to identify any reason for the lockout device to have been left in position
- Determine, through inspection and hazard assessment, if it is acceptable to remove the lockout device
- Notify affected personnel that an isolation device needs to be removed
- Assign a Competent Person to remove the lockout device; the assigned person will:
  - Perform a work site hazard inspection
  - Confirm that it is safe to remove the lockout device
  - Remove the identified lockout device
  - If authorised to do so, reinstate the infrastructure equipment for normal operations
  - Record the removal of the isolation device (e.g., Clearance Certificate or Work Control Permit)
  - Advise affected personnel:
    - That the lockout device has been removed; and
    - Of the operational status of the infrastructure equipment
- Advise the Authorised Person who installed the isolation that their device has been removed

Note 4.7.4.1: Failure to remove isolation devices following job completion may result in the individual being called back to site to remove it.

4.8 Energy Isolation Safety

4.8.1 General Guidance

The following guidance is designed to enhance personal safety during hazardous energy isolation activities and should be considered, as appropriate, at the time of installing energy isolations:

- Closed valves are chained and must be secured against inadvertent movement, so that they cannot be inadvertently opened
- Only Competent Personnel (qualified in the task) are permitted to work on **live equipment** (i.e., equipment that has not been isolated from energy sources)

Note 4.8.1: Tasks that may be required to be performed on **live equipment** may include, but may not be limited to:

- Racking out breakers
- Checking amp draws
- Heat scanning
- Vibration checks and balancing prime movers
- Panel light lamp change; and
- Performing compression tests on engines

Note 4.8.2: A Clearance Certificate and Work Control Permit will be issued that must clearly state that the equipment is live and what additional precautions are required.

- Remove and de-activate each source of hazardous energy

4.8.2 Mechanical Isolations

Positive isolation is regarded as the most secure method and should be used for mechanical isolations:

- Positive isolation includes:
  - **Spool Removal:**
    The removal of a section of pipe or a spool piece and blanking of the **live end**.
  - **Blind Isolation:**
    Insertion of a line rated blind (i.e., spade) between flanges.
  - **Physical Disconnection:**
    The disconnection of electrical cables.
- Positive isolation will be used as the preferred method of isolation for:
  - Confined Space Entry; and
  - Hot Work
- Valve actuators, when used for energy isolations:
  - Manually operated valves will be locked and tagged to prevent unauthorised or inadvertent operation
  - Electrically actuated valves will have the power supply isolated, and any manual override manually locked
  - Pneumatic and hydraulic operated valves which:
    - Fail **closed** will have the control lines isolated and physically disconnected; or
    - Fail **open** or **fail as is** will not be used for isolation purposes
- Other energy sources (e.g., heat, gas, steam, and pressure) will be isolated by a physical break, for example:
  - Positive isolation (open ends will be blanked or capped)
  - Double block and bleed; and
  - Shutdown of the source (including electrical isolation)

4.8.3 Pressure Systems

Guidance for the safe and effective isolation of pressure equipment:

- Confirm that any closed energy isolation valves are providing an effective seal:
  - Utilise double block and bleed
  - Ensure that there is an open bleed valve between two closed valves or install blinds
  - Confirm bleed valve remains open to relieve any trapped pressure
  - Be aware of hazardous fluid/gas during critical venting

Note 4.8.3.1: Do not rely on a pressure indicator gauge as a positive indicator or pressure within a system or pipeline.

- Safely dissipate any residual energy from the system

Note 4.8.3.2 Release pressure away from the body and in a manner, which does not affect other personnel.

- Test and confirm lockout are effective, verify that:
  - System pressure is zero
  - Do not rely on a pressure gauge as a positive indication of pressure.
  - Equipment cannot be moved by rotation or gravity
  - Activate electrical on/off switch to confirm no electricity from breaker and conduct local switch start test; and/or
  - Ensure a qualified electrician tests the circuit with a meter to confirm that there is no energy beyond the breaker

4.8.4 Hydraulic and Pneumatic Systems

Guidance for the safe and effective isolation of hydraulic and pneumatic systems:

- Safely shutdown the hydraulic or pneumatic system, this is likely to include:
  - Mains isolation switch
  - Hydraulic/Pneumatic supply valve; and
  - Drain valve
- Dissipate any stored energy via drain valves
- Confirm that there is no residual pressure in the line, reservoirs or accumulator feeding the cylinder
- Lockout:
  - Hydraulic and pneumatic supply valves in the closed position; and
  - Drain valves in the open position

Note 4.8.4.1: Hydraulic and pneumatic energy can stay in the system indefinitely after it has been switched off.

4.8.5 Electrical Energy

Guidance for the safe and effective isolation of electrical energy:

- Electrical equipment will be considered to be energised (**live**) until proven de-energised
- The electrical equipment to be worked on will be isolated from all sources of supply by either:
  - Opening switches
  - Removing fuses; or
  - Switching circuit breakers
- Removable or rack-out circuit breakers, combined fuse switches or removable fuses, should be:
  - Racked out; or
  - Removed to provide a visible break for isolation verification
- Where isolation is provided by the removal of fuses in a distribution board or motor starter:
  - Removed fuses will not be stored in the same panel as the fuse holder
  - Fuses should be tagged and stored securely
  - Where practical, blank fuse cartridges, preferably tagged **For Isolation Purposes** should be inserted into the fuse holder
- When isolating an electrical source using the breaker switch:

- Stand to the side of the switch facing away from the unit, then disconnect and pull the breaker switch:
- Place the main electrical disconnect switch in the **Off** position
- Secure in the off position (e.g., scissor adapter) and lock and tag
- Check for alternate sources of power

Warning: Stop Buttons on control circuits cannot be used as an energy isolating device.

- Only Qualified Personnel are permitted to work on **live equipment**:
  - Racking out breakers
  - Checking amp draws
  - Heat scanning
  - Vibration checks and balancing prime movers
  - Panel light lamp change; and
  - Performing compression tests on engines

4.8.6 Control Systems

SCADA (Supervisory Control and Data Acquisition) and PLC (Programmable Logic Controller) systems and automatic operated equipment that is activated with power, gas, and pneumatic, hydraulic, or electrical power, are not considered locked-out unless:

- Rendered inoperable by physically disabling or disconnecting the control medium; and
- Locked out and tagged at the control point

4.8.7 Solenoids and Electrical Assist Devices:

Are not considered locked-out or fail-safe unless:

- Electrical power supply is disconnected
- Hydraulic, pneumatic gas or other control medium is completely disconnected; and
- Stored energy has been safely dissipated

Note 4.8.7.1: If isolated correctly this should ensure that leakage through the solenoid device will not activate the device.