Southern Ports

Isolation and Tagging Procedure

DOCUMENT CONTROL

Revision Number	Description	Reviewed by	Approved by	Review Date	Issue Date
01	New document.	Group HSE Manager	Chief Operating Officer		27/02/2026
01.1	Extra Information added	Group HSE Manager	Chief Operating Officer	19/03/2026	19/03/2026

AUDIT

This Procedure shall be reviewed or revised:

- where a Risk Assessment or Audit identifies a need to review
- when legislative changes impact this Procedure
- following a significant incident involving this Procedure
- at least every three years.

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1 INTRODUCTION

1.1 Purpose

This Isolation and Tagging Procedure documents the process for conducting isolation, lockout and tagging to provide a safe system of work protecting workers from potential hazards associated with uncontrolled energy release.

1.2 Scope

In Scope	Out of Scope
All activities relating to Isolation and Tagging conducted by Southern Ports workers, including contractors and port users under the control of Southern Ports inside the port land and marine boundaries. All workers undertaking Isolation and Tagging are required to comply with this Procedure.	Requirements for the isolation and switching of High Voltage electrical devices are NOT covered under this Procedure. Refer to the Southern Ports High Voltage Electrical Isolation and Access Procedure. Isolation and Tagging activities conducted by leaseholders that are under the full control of the lessee, and actions of the public (non-shipping) inside the marine boundaries. Work controlled by an appointed principal contractor where the area of work is wholly isolated from all other work areas.

1.3 Roles and Responsibilities

Roles and responsibilities for isolation and tagging are shown in Table 1 below.

Table 1: Roles and Responsibilities

Role	Responsibilities
Authorisation to Work (ATW) / Permit Approver	• Approve Authority to Work / Permit, once all other work process requirements have been met. • Manage all aspects of Lockbox access and security. • Where there is an associated Isolation, confirm that the Scope of Work can take place within the original intent and boundary of the isolation. • Communicate with Isolators and authorise the unlocking of equipment.
ATW Requestor, ATW Approver and Permit Approver	• Ensure all workgroup members sign on to a Isolation Confirmation Plan and Sign-on form and lock on to the correct Lockbox.
Lockbox	• A Lockbox is a uniquely labelled red box that is lockable (should have a transparent door to display documents), and which generally contains ten (10) Blue Lockbox locks and key, and stores paperwork for group isolations. • The Lockbox is used for multiple isolations in shutdowns or during plant and equipment overhauls and can also be used for commissioning purposes.
Isolator	• Must be trained in correct Level of Isolation • Have a clear understanding of the scope-of-work, hazards and risks within the work area, as well as any other concurrent work interfaces. • Ensure that all hazards associated with energy sources of the plant have been identified. • Ensure all energy sources are de-energised and isolated using an isolation device and locked out using an approved lock-out device. • Ensure test and try confirmation check for zero energy is completed. • Planning, placing and proving an isolation, locking of isolation points • Remove isolation locks from isolation points and sign onto Isolation documents. Level 2 and 3 Isolators also responsible for the preparation and issue of;

Table 1: Roles and Responsibilities

Role	Responsibilities
	○ Isolation Confirmation Plan and Sign-on form ○ Isolation Lockbox Sign-on / Sign-off form and ○ Workgroup Supervisor Handover form
"Isolator 2" (Isolation Verifier)	• Must be trained in Level 3 Isolation for management of Lockboxes • Verify the isolation plan is appropriate for the scope-of-work. • Witness each isolation being conducted the setting, proving and locking of all isolation points listed on the Isolation Confirmation Plan and Sign-on form. • Verify all isolation points listed are properly locked, tagged and completed.
Personal Lock Holder	• Ensure their Personal Locks and Personal Danger Tags are in place before commencing work on the isolated equipment. • Ensure their own Personal Locks are removed if leaving site, or when no longer working on the task.
Southern Ports Representatives	Southern *Ports Representatives (Managers, Superintendents* and *Supervisors)* have the following obligation under this Procedure: • Facilitate and verify that a documented Safe System of Work is established, which identifies associated hazards and controls to minimises risk to health, safety and environment. • Ensure that the required approved and authorised permits where required have been issued. • Ensure that all team members fully understand their obligations of this Procedure. • Ensure there is safe access and egress, approved serviceable plant, equipment, tooling and hazardous substances. • Verify that workers are competent to perform their duties by evidence of training and assessment. • Regularly monitor and assess the workplace for safety and compliance.
Workers	Workers have the following obligation under this Procedure: • Engage with the Workgroup Supervisor in the process of establishing a documented Safe System of Work that minimises risk to health, safety and environment. • Act responsibly and perform their work in accordance with this Procedure and the established Safe System of Work. • Understand their obligations within this Procedure. • Take reasonable care to protect the health and safety of themselves and others, and to protect the environment. • Report all injuries, near misses, incidents and hazards to their Leader (Manager or Supervisor). • Only carry out tasks that they have been verified and authorised to do so through training and or assessment.
Workgroup Supervisor	• Ensure the Workgroup has and understands the Scope of Work. • Ensure competencies of all Workgroup members are appropriate and current for the scope-of-work and have been recorded and maintained (e.g.; ATW and submission of licences and competencies, review competency matrix in Litmos for direct workers)

2 GENERAL INFORMATION

To establish a safe system of work, isolations shall be managed using Level 1, Level 2 or Level 3 isolations as set out in this document. This shall apply to fixed or mobile plant and equipment that requires, but not limited to:

- Cleaning or for clearing purposes.
- Items that have been taken out of service for repairs and or maintenance.
- Periodic and planned maintenance.
- For new installations.

Isolations shall follow the below principal process:

- Identify the plant involved and the corresponding energy sources.
- Identify and control all other hazards.
- Establish exclusive control and other barricading requirements to protect work area from unauthorised access, in accordance with Southern Ports Barricading and Guarding Procedure.
- Shut the plant down.
- De-energise all stored energy sources.
- Lock out and tag all energy sources and other potential hazards.
- Test and confirmation of isolation (zero energy).

Note: Any deviation from this procedure requires a risk assessment which has been reviewed by a subject matter expert and approved by the RM

2.1 Position to Process Matrix

Table 2: Position to Process Matrix

Worker Title	Process Title	Limitations	Hardware and Permits
Personal Lock Holder	Level 1 Isolation	May apply their personal locks to lock box or hasp that has been applied by a level 2 or 3 Isolator. May only isolate: • a single isolation point on mobile plant that they are trained to isolate. • A single isolation on fixed plant where there are no intersecting or adjacent parts that if energised would impact the isolated plant. • for themselves (no other person may apply a personal lock to their isolation) Apprentices and Trainees must be under direct supervision of a competent and authorised person who is qualified in the appropriate trade and Isolation being performed, who may use a hasp to isolate with the apprentice / trainee.	• Red Lock (protect person) • Red tag • SWMS and/or JHA for task
Level 2 Isolator	Level 2 Isolation	• Level 2 Isolator training • Up to 6 workers and up to 6 isolation points on a single task. • May only isolate the aspects they are qualified / competent to isolate. ○ E.g. electrician must isolate switchboards. • Competent person may isolate mechanical / hydraulic	• Orange Locks (confirm initial isolation - Issue sets of 6 keyed alike to Level 2 Isolator). • Red Locks (protect person) • Hasps or portable Lockbox with maximum of 7 lock-on points (6 for workers and additional for orange lock). • **Isolation Permit** – Level 2/3

		• Isolation plans for tasks / equipment. • Any variation from standard must develop new isolation plan.	Isolator must handover to the responsible workgroup supervisor, who at completion of the activity hands back to a Level 2 Isolator for energisation. The responsible workgroup supervisor must hand over to an incoming workgroup supervisor if leaving the task or between shifts. • **ATW** for Contractors
Level 3 Isolator	Level 3 Isolation (Lockbox)	• Level 3 isolator training • Must have two Level 3 Isolators Unlimited number of isolation points. Each lock box holds 10 blue locks to be applied to isolation points in the field. Where more than one Lockbox utilised individuals must lock on to all Lockboxes identified in the isolation plan, with their red locks.	• **Permit / Isolation Hut** • Lockboxes (fixed) • Red locks (up to 50 attached to outside of Lockbox) • Blue locks to go on isolation points • Black Lock to secure Lockbox • **Isolation Permit** – Level 3 Isolator must handover to the responsible workgroup supervisor, who at completion of the activity hands back to a Level 3 Isolator for energisation. The responsible workgroup supervisor must hand over to an incoming workgroup supervisor if leaving the task or between shifts. • **ATW** for Contractors

3 CONFIRMATION CHECK OF ISOLATIONS

This section applies to all isolations. Level 3 isolations require use of a Lockbox and follow additional processes described in section 7 “Level 3 Isolations and use of a Lockbox”.

An emergency stop button is not an isolation point. If full current isolation cannot be achieved, a risk assessment for alternate isolation must be approved by Maintenance Manager and the Regional Manager.

Once the isolation has been set, it must be locked and then proven. Once a Proven Isolation has been confirmed, the isolation is ready for work to commence.

A test and try for confirmation of a zero-energy state of the plant / equipment must be performed and is considered a key step in confirming a zero-energy state or control of mechanical or potential stored energy.

The person performing the isolation, shall perform either one or a combination of the following tests in order to determine if all energy associated with that isolation has been released or secured:

1. Test 1

Check if there is a visual indication that the equipment has been de-energised (for example, attempt to start, physical separation of the isolator or plug and socket). If there is a positive visual indication, conduct the following:

- Level 1 Isolation: Personal Lock Holder - Place your Red Personal Lock and Personal Danger Tag.
- Level 2 Isolation: Level 2 Isolator place an Orange Isolation Tag & Lock to all of the required isolation points.
- Level 3 Isolation: Level 3 Isolator place Blue Isolation Lock and Tag to all of the required Isolation points (follow the process outlined in section 7 “Level 3 Isolations and use of a Lockbox”)

If there is no visual indication of de-energisation, perform Test 2.

2. Test 2

Check the phase lights or appropriate instrumentation. All phase lights must be observed to go from On to Off – if a light has failed, this check must not be used until all lights are operational. Where instrumentation is used as an isolation test, it must provide a confirmation that energy has been released and there is no residual energy in the system being de-energised.

If the test provides adequate confirmation that there is no residual energy, conduct the following:

- Level 1 Isolation: Personal Lock Holder - Place your Red Personal Lock and Personal Danger Tag.
- Level 2 Isolation: Level 2 Isolator Complete an Orange Isolation Tag & Lock to the isolation point.
- Level 3 Isolation: Level 3 Isolator place Blue Isolation Lock and Tag to all of the required Isolation points (follow the process outlined in section 7 “Level 3 Isolations and use of a Lockbox”)

If there is no positive indication of de-energisation, perform Test 3.

3. Test 3

Where Test 1 and 2 do not provide adequate confirmation of isolation, the appropriate energy source must be physically measured and appropriately drained of residual energy, for example, voltage or pressure measurements. It is the responsibility of the person performing the de-energisation to ensure that energy has been released or drained appropriately prior to the following being conducted:

- Level 1 Isolation: Personal Lock Holder - Place your Red Personal Lock and Personal Danger Tag.
- Level 2 Isolation: Level 2 Isolator Complete an Orange Isolation Tag & Lock to the isolation point.
- Level 3 Isolation: Level 3 Isolator place Blue Isolation Lock and Tag to all of the required Isolation points (follow the process outlined in section 7 “Level 3 Isolations and use of a Lockbox”)

Where bleeding of valves, hydraulic lines are required; the appropriate process must be followed prior to the placement of the Orange Isolation Tag and Lock.

Once any electrical isolation has been confirmed as effective and where there is potential for plant to hold mechanical or stored energy, a mechanical locking device suitably designed to control stored energy must be fitted prior to the placement of the Orange Isolation Tag and Lock. For example;

- conveyors, chute diverters, positioners, belt clamps, gravity take up towers counterweight, fluid lines.

Where plant and equipment consists of multiple systems which may store energy, only the energy sources that have been isolated and confirmed will be documented on the Isolation Plan Permit.

Note: If a Proven Isolation has not been achieved, the isolating person must report to the Workgroup Supervisor to determine what options are available. The Isolation may be redesigned, or, in extreme cases, the Working on Live Equipment process may have to be requested.

4 APPRENTICES AND TRAINEES

All apprentices, trainees and work placement students must;

- Be under direct supervision of a competent and authorised person who is qualified in the appropriate trade and Isolation being performed.
- Have completed the Lock Holder training and
- Apply their own Red Personal Lock and Personal Danger Tag once the isolation has been completed and verified as effective.

Note An apprentice in their final trade year may be trained and if assessed competent, permitted to conduct Level 2 Isolations, however, shall do so only when under direct supervision by a *Responsible Person* who is a *Level 2 Isolator*, and that Level 2 Isolator will also sign onto the Orange Isolation Tag stating that the isolation was conducted under their supervision.

5 LEVEL 1 ISOLATIONS

Level 1 Isolations are completed by a personal lock holder using a red personal lock and personal danger tag;

- Where there is only a single point of isolation
- Where they are the only person conducting a pre-start or working on **mobile equipment** that they are trained, competent and authorised to operate.
- Personal Lock Holder must work under a Level 2 or 3 isolator in all situations where there is more than one isolation point or more than 1 person working on the isolated plant. In these circumstances, they are required to lock on to either a Level 2 Isolation Points, or a Level 3 Group Isolation Lockbox.

5.1 Conducting Level 1 Isolation

The following points identify the minimum isolation requirements for an Authorised Level 1 Isolation:

1. Refer to available isolations plans as applicable, and the original equipment manufacturer (OEM) specifications for the equipment.
2. Identify all energy sources and hazards by conducting a Risk Assessment (refer to appendix A for list of Energy Sources).
3. Shutdown of the plant, equipment or service.
4. Control other potential hazards in the area.
5. Isolate all energy sources.
6. Release or secure any stored energy:
   - Once any electrical isolation has been confirmed as effective and where there is potential for plant to hold mechanical or stored energy a mechanical locking device suitably designed to control stored energy must be fitted prior to attaching a Red Personal Lock and Personal Danger Tag. For example conveyors, chute diverters, positioners, belt clamps, gravity take up tower counterweight and fluid lines.
   - Attempt to operate the plant / equipment, start controls (Test).
   - Test the equipment or process by using appropriate test equipment and / or visual inspection (ensure valves are clear / closed, lines have been drained, indication lights are off).
   - For more detail on fixed plant see the Confirmation Check of Isolations section 3 of this document (Test 1 to 3).
7. Isolate and lock out – the person working on the plant / equipment must apply their own Red Personal Lock with their own Personal Danger Tag to the isolation point (Lock out / Tag out).

8. Once work is completed, the individual working on the plant / equipment shall remove their Red Personal Lock and Personal Danger Tag from the isolation point before the plant is returned to operational status.
9. If work remains incomplete at the end of shift, Red Personal Locks / Personal Danger Tag shall be removed, and Out of Service Locks and Tags shall be placed on the equipment to indicate its service status.

6 LEVEL 2 ISOLATIONS

Level 2 Isolations are completed by Level 2 Isolators using an orange lock and orange tag as well as their own red lock and danger tag where they are working on the isolated equipment, in the following circumstances;

- Where there are up to 6 workers (personal lock holders or Level 2/3 isolators), who are
- working on the same item of plant or equipment, with
- Up to 6 isolation points

6.1 Level 2 Isolator

A *Level 2 Isolator* shall have significant experience with this Procedure and relevant Southern Ports plant and equipment within their discipline.

The *Level 2 Isolator* will have undertaken the required Southern Ports training, been assessed in theoretic knowledge, and undertaken a range of field based physical activities conducted in various situations and on a range of equipment / plant correctly, to be deemed as competent in applying Level 2 Isolations.

Sign off on the documentation for the person deemed competent is to include a Trainer and Assessor conducting the training and assessment, a Southern Ports Level 2 Isolator involved in the process as a Subject Matter Expert, and the assessed worker.

Level 2 Isolators are authorised to isolate plant and equipment for up to 6 workers (Personal Lock Holder) working on the same item of plant or equipment with up to 6 isolation points.

6.2 Conducting Level 2 Isolations

The following steps identify the minimum isolation requirements for a Level 2 Isolation where hasp(s) are used for multiple workers on a single item of plant or equipment, with up to 6 isolation points:

1. Identify all energy sources and hazards by conducting a Risk Assessment, refer to appendix A Energy Sources, and complete an isolation permit Isolation Plan SWMS and or JHA (note high risk construction work must have a SWMS)
   - JHA / SWMS identifies what point needs to be isolated.
   - isolation plan has standard isolation for tasks/plant identified
   - Permit identifies test for zero energy and sign-on / sign-off
2. For each energy source:
   - Consider how each will be removed/controlled; and
   - Identify the isolation points and drain points (water/pneumatic/hydraulic):
   - If necessary, use reference materials such as plant drawings;
   - Where necessary, visually trace the piping from the equipment to the isolation points to confirm the accuracy of the isolation points.
   - The correct timing and sequencing of isolations to ensure, for example, proving valves under working pressure
3. Shut the plant down (planned) / plant has shut down unexpectedly (unplanned).

4. The *Responsible Person* shall inform the affected workers – both internal and external.
5. Control other potential hazards in the area.
6. Level 2 Isolator, isolate and lock out all energy sources using a hasp with the orange lock and orange tag, applied to the isolation point on the equipment.
7. If the Level 2 Isolator is working on the equipment they must apply a red personal lock and danger tag
8. Setting the isolation is the process of placing the isolation point into its "energy barrier" state or position e.g., switching off (creating an air gap), closing a valve, installing a pipe blind
9. Confirmation check of isolation and release or secure any stored energy:
10. Once any electrical isolation has been confirmed as effective and where there is potential for plant to hold mechanical or stored energy, a mechanical locking device suitably designed to control stored energy must be fitted after to attaching an Orange Lock and Orange Isolation Tag as well as a Red Lock and Danger Tag. For example, conveyors, chute diverters, gravity take up tower counterweights, Positioners and belt clamps.
    - Attempt to operate the plant or equipment start controls (Test).
11. Test the equipment or process by using appropriate test equipment and/or visual inspection (ensure valves are clear or closed and lines have been drained indication lights are off).
    - For more detail see the Confirmation Check of Isolations section 3 of this document (Test 1 to 3).
12. Level 2 Isolator on completion of above steps applies an Orange Isolation Lock and tag, to each hasp at each isolation point to confirm that the energy has been released, test for zero energy and proven isolation completed.
13. Level 2 Isolator to complete isolation permit and attach to the isolation point in a weatherproof sleeve.
14. If the Level 2 Isolator is not working on the equipment, they may now remove their red personal lock.
15. Each person working on the equipment / plant must then apply their Red Personal Lock complete with their Personal Danger Tag to the hasp on each isolated point only if the orange Isolation lock is already in place to confirm release of energy, read and sign on to the isolation permit, SWMS and / or JHA.
16. Once work is completed, each person working on the plant / equipment shall remove their own Red Personal Lock and Personal Danger Tag from the designated Isolation Point.
17. The Level 2 Isolator then removes the Orange Isolation Lock and tag and remove the isolation before the plant is returned to operational status and inform the responsible person.
18. If work remains incomplete at the end of shift, Out of Service Locks and Tags shall be placed on the equipment to indicate its service status and notify the responsible person.

7 LEVEL 3 ISOLATIONS AND USE OF A LOCKBOX

This section outlines additional requirements for Level 3 isolations requiring use of a Lockbox.

Level 3 Isolations – are completed and controlled by 2 x Level 3 Isolators, using blue locks on isolation points in the field, and black locks to secure Lockboxes where Personal Lock Holder red locks are secured, in the following circumstances;

- Where there are more than 6 workers
- More than 6 locks are required for the isolation

7.1 Level 3 Isolators

Level 3 Isolators shall have first been trained in and gained sufficient experience in Level 2 Isolation (minimum 3 months) before completing Level 3 Isolator training for conducting Level 3 isolations.

Level 3 Isolators shall also have significant experience with this Procedure and relevant Southern Ports plant and equipment within their discipline and may only isolate equipment they are competent to isolate.

Sign off on the documentation for the person deemed competent is to include a Trainer and Assessor conducting the training and assessment, a Southern Ports Appointed Level 3 Isolator involved in the process as a Subject Matter Expert, and the assessed worker.

7.2 Conducting a Level 3 Isolation

Isolation permit and appropriate isolation plan for the task and equipment shall be developed, for implementation of the isolation;

- one person shall be nominated as “Isolator 1”, who will conduct the isolations; and
- the other person shall be nominated as “Isolator 2”, who will conduct the confirmation checks for each of the isolations.
- Black Lock key are the responsibility of the Level 3 Isolator. These keys must be kept in a secure location that only the Level 3 Isolator has access to.

Key steps for implementation of isolation;

1. Where the Level 3 Isolators who performed, the isolations are required to work on the plant / equipment, they will also be required to apply their own Red Personal Lock and Personal Danger Tag to the Isolation device or the Lockbox.
2. A Blue Lockbox Lock and the Blue Isolation Tag must be attached to each of the nominated isolation points as per the Isolation Confirmation Plan and Sign-on form by two Level 3 Isolators simultaneously where one will be nominated as “Isolator 1” and the other as “Isolator 2”.
3. “Isolator 1” must sign the “Isolator 1” column on the Isolation Confirmation Plan and Sign-on form as each of the nominated isolations is completed.
4. “Isolator 2” must verify each of the nominated isolations by the means of reviewing that the isolations have been completed and confirmed against the Isolation Confirmation Plan and Sign-on form, “Switching Procedure” section, that the plant or equipment is now at a zero-energy state by signing in the “Isolator 2” column.
5. The Lockbox is where the keys from the Blue Locks are secured within, along with all unused Blue Lockbox Locks that are not used in the isolation..
6. A completed Isolation Confirmation Plan and Sign-on form which shall list all the required isolations and shall also be placed in a weather proof sleeve and attached to the outside of the Lockbox to clearly visible at all times, identifies which isolations have been applied.

7. This permit defines all the isolation points contained within the Lockbox and is used as critical references for any person using the Lockbox as the isolation point.
8. “Isolator 1” must then lock the Lockbox by placing a Black Isolation Lock and a Black Isolation Tag onto the Lockbox confirming that all isolations contained within the Lockbox have been confirmed and witnessed.
9. The Level 3 Isolator will then place an Isolation Lockbox Sign-on Sign-off Form onto the Lockbox.
10. All workers working under the Lockbox isolation process shall sign onto the form, under the witness of the responsible task supervisor (typically in the workgroup who initiated the isolation for their work), before proceeding into the work area.
11. If work remains incomplete at the end of shift, Red Personal Locks and Personal Danger Tag shall be removed and an Out of Service Lock and Tag shall be placed on the equipment or Lockbox to indicate its service status.

7.3 Red Personal Lock and Personal Danger Tag on a Lockbox

Any person working under the protection of the Lockbox must ensure that all plant and equipment requiring isolation for their task is listed on the Isolation Confirmation Plan and Sign-on form Switching Procedure section, and that all isolations have been signed by the *Isolator 1* and *Isolator 2* before attaching their Red Personal Lock and Personal Danger Tag.

The *responsible task supervisor / isolator* shall witness all persons applying their Red Personal Lock and Personal Danger Tag onto the Lockbox and check that they understand what has been isolated.

Each person in the workgroup must fix their Red Personal Lock and Personal Danger Tag onto the Lockbox which is considered as the Isolation point. Red Personal Locks and Personal Danger Tag must only be fixed to isolation points that have an Orange Confirmation Tag and Lock attached.

On completion of their works or at the end of their shift, before they leave site, workers working under the Lockbox isolation shall sign off on the Lockbox Sign-on Sign-off Form once they have removed their Red Personal Lock and Personal Danger Tag.

7.4 Field Checks

Prior to starting a task, each person in the workgroup must walk the task and verify that the Isolation Points where they have placed their Red Personal Lock and Personal Danger Tag match the Isolation List and the plant or equipment labelling.

The required work tasks can then commence on the isolated equipment by each individual of the workgroup who have placed their Red Personal Lock and Personal Danger Tag on the required Lockbox.

7.5 Change of Shift Requirements for a Lockbox

If work is paused / suspended temporarily but the equipment is not safe to return to operational use, an Out of Service Lock and Tag must be placed on the Lockbox stating the reason.

Suspension and reissue section of permit to be completed

Where the Lockbox is to be used on the next shift, with no changes the responsible workgroup supervisor/ isolator must sign over to the incoming workgroup supervisor/ isolator on the Isolation Confirmation Plan and Sign-on form form, section 3 Isolation handover, out of service or suspension.

- 14-day validity before permit must be cancelled and re-issued with all confirmation of isolation checks performed again.

- In person visual handover plus commentary on permit documentation
- Contractors trained at appropriate level of isolation may take responsibility following sufficient handover.

At the completion of the task, or at a shift change, the workgroup must remove their Red Personal Lock and Personal Danger Tag without disturbing any other Red Personal Locks and Personal Danger Tags that may still be attached to the Lockbox.

7.6 Close Out of a Lockbox and Isolation Confirmation Plan and Sign-on form

If no further work is required on the equipment and the equipment is ready to be restored to operational service:

When all the Red Personal Locks and Personal Danger Tag are removed from the Lockbox, and all persons have signed off their tasks as complete, the Lockbox can be closed out.

The responsible workgroup supervisor for the task and the Level 3 Isolator shall visually inspect the work area and plant to ensure safe to re-instate to normal operations.

The *Level 3 Isolator* must review the isolation documentation to ensure all processes have been correctly followed.

The Level 3 Isolator may then remove the Black Isolation Lock and Tag, open the Lockbox, shall take the Blue Lockbox Locks key from inside the Lockbox, and then remove the isolations per the Isolation Permit requirements for restoration.

On completion of the above the *Level 3 Isolator* must then sign the Isolation Confirmation Plan and Sign-on form to cancel the Lockbox Section Cancelation of Permit and advise the Area Supervisor that the plant or equipment is ready to be re-energised.

7.7 Changes to a Lockbox

When an isolation point within an established Lockbox requires energising and de-energising due to scheduled maintenance or shutdown phase, the following actions must be taken:

1. The Lockbox can be opened after all Red Personal Locks and Personal Danger Tag have been removed.
2. The Lockbox can only be reinstated when the isolation points have been de-energised, confirmed and the Lockbox Lock and Tag have been reattached by a *"Isolator 1"* and *"Isolator 2"* who removed the original isolation.
3. A record of this change must be made on the Isolation Confirmation Plan and Sign-on form. This shall be achieved by initialling the respective isolations in Section, Switching Procedure list identifying that the isolations have been restored and verified.
4. *"Isolator 1"* must then relock the Lockbox by placing a Black Isolation Lock and a *Black Isolation Tag* onto the Lockbox confirming that all isolations contained within the Lockbox have been reconfirmed and witnessed.

The Lockbox is now active again without any need to change Lockbox numbers.

- **CAUTION** Any alteration, modification of isolations including If any isolation points are removed, or new isolation points are added the Lockbox must be closed out per section 7.6. Use of suspension / re-issue is only where there is no change to the isolation points.

8 COMMISSIONING PHASE (TESTING AND CONTROL)

The *Isolator* is the only person who can place a Blue Commissioning and Test Tag on plant, equipment or an isolation point in conjunction with a Commissioning Testing Control Permit.

Unless authorised by the *Isolator*, only one task may be performed at a time on any plant, equipment or isolation points while under the Commissioning Phase.

The purpose of the Commissioning Phase is to:

- Restrict access to equipment or plant that is live and operating, while specialist tasks are being conducted e.g. fault finding, equipment being tested, calibrated or commissioned.
- Provide restricted access to de-energised equipment to prevent others applying their Red Personal Locks and Personal Danger Tag if not associated with a task.
- Restrict access by other persons to areas where an energy source or hazard may not be controlled inside the barricaded area.
- Provide a mechanism that allows the safe re-energization of isolation point(s) within an established Isolation.

There are two reasons why an isolation point may need to be energized and de-energised within an established Lockbox Permit / Isolation:

- The isolation point needs to be switched on and off relatively frequently in order to conduct the scope-of-work. Several times each shift a drive must be re-energised and used to progress the scope-of-work. It is then re-isolated.
- The isolation points needs re-energizing at the completion of the scope-of-work for final testing. Examples will be the direction testing of an electric motor after it has been replaced and prior to re-coupling; or the testing of a conveyor belt that has been changed out.
- **CAUTION During the commissioning phase, a commissioning tag in place signifies that the equipment is operational/live.** The Commissioning Phase must NOT be used to manage or control an energy source where a Red Personal Lock and Personal Danger Tag will best control the operation of plant or equipment. The Commissioning Phase alone does NOT provide personal protection; it must be used in conjunction with a Risk Assessment and a Control Plan that details the process that is to be undertaken.

8.1 Confirmation of the Commissioning Phase

The *Level 2 or 3 Isolator* (as appropriate to the level of isolation in place) must determine if the energy sources are to be energised or de-energised and enter the details of the nature of the tasks requiring the Commissioning Phase onto the Commissioning Test and Control Permit.

- Suitable barricading must be established restricting access to the area.
- The Permit requestor/holder must ensure all Personal Locks have been removed from the Lockbox or plant and equipment under commissioning.
- A Commissioning Tag must be placed on the outside of the Lockbox or plant and equipment under commissioning to communicate “Commissioning and Testing in progress – DO NOT lock on.”
- The Level 2 or 3 Isolator removes the Isolation Lock from the relevant isolator, hangs a commissioning tag on the isolation point and re-energises the point, at a single point ensuring the capacity to switch on or off remains at all times.

If the energy source is not to be de-energised, the Level 2 or 3 isolator must enter the details on the Commissioning Testing Control Permit and place a Blue Commissioning

and Test Tag must be attached to the plant / equipment in a secure manner and on the Lockbox to communicate “Commissioning and Testing in progress DO NOT LOCK ON”.

8.2 Commissioning Phase Requirements

The work area must be barricaded per barricading and guarding procedure, to individuals entering the work area without permission of the workgroup supervisor.

In the event that equipment relevant to the Commissioning Phase requires energising, operating and then de-energising again, or vice versa, the *Level 2 or 3 Isolator* must check that the Risk Assessment and Control Plan for the works and that the Commissioning Test and control Permit to ensure that risk controls are adequate and are still applicable to the intended energise and de-energise phase for the area.

The *Level 2 or 3 Isolator* must be contactable for the period of time that the Commissioning Phase is in place. All persons associated with the task must work at all times under the instruction and control of the *Level 2 or 3 Isolator*.

Access to Commissioning areas is limited to those individuals signed on to the Commissioning Test and control Permit. Red Personal Locks and Personal Danger Tag must not be placed on an isolation point which has been placed under a Commissioning Phase unless directed by the *Level 2 or 3 Isolator*.

Individuals may leave and return to a controlled Commissioning Phase area while remaining signed on, with the permission of the *Level 2 or 3 Isolator*. All individuals must sign off on the Commissioning Test and control Permit at the end of each shift or at the end of their assigned task.

Where a person is required to join the workgroup after the area is considered to be under a Commissioning phase, that person must contact the *Level 2 or 3 Isolator* and will need to review and understand the Control Plan and sign on to the completed Risk Assessment (such as a Job Hazard Analysis) and they must follow all the controls as per the Risk Assessment and sign on to the Commissioning Test and control Permit.

8.3 Completion of the Commissioning Phase

At the end of the Commissioning Phase, the *Level 2 or 3 Isolator* shall check that all members of the workgroup are signed off from the Commissioning Test and control Permit before removing the Blue Commissioning and Test Tags from the barricades and plant and equipment and advising the *Area Supervisor* that the plant or equipment is ready for operation. Closing ATW/Permit as applicable.

8.4 WORKING ON LIVE EQUIPMENT

Note This process does not cover working on live electrical equipment. For information on this process, refer to the site’s Live Electrical Permitting system.

The Working on Live Equipment Permit process provides a method to gain approval to perform work on live equipment that will not be prepared for work using normal isolation processes. This process applies to all work being conducted onsite when either a decision has been made to work on live equipment, or when a Proven Isolation has not been achieved through the isolation process.

A JHA must be developed and include (participants) as a minimum: the Isolator, SPA-Supervisor; and any relevant technical specialists. The JHA will determine the hazards and controls, including those created by the activity.

Once completed, the JHA must be attached to the Working on Live Equipment Permit and presented for consideration/approval.

Prior to endorsing and approving the Permit signatories must consider:

- If the task must take place on live equipment.

- The robustness of the risk assessment; and
- Residual risks after controls are implemented.

9 OTHER ISOLATION CONSIDERATIONS

9.1 Removal of Another Person's Red Personal Locks and Personal Danger Tags

A Red Personal Lock and Personal Danger Tag Removal Authorisation must be completed and approved before any action is taken to remove another person's Red Personal Lock and Personal Danger Tag, or before cutting any lock or hasp associated with the isolation system. This will apply to:

- Where an individual cannot return to site to remove their own Red Personal Lock and Personal Danger Tag.
- Where a key cannot be used to open any lock used as part of the isolation process, (including Red Personal Lock, Orange Isolation Lock or Blue Lockbox Locks). This includes the removal of a Red Personal Lock by the owner. You may NOT cut any lock or hasp including your own lock or hasp off without approval from the Regional Manager or their delegate.

If another person's Personal Danger Tag is accidentally removed, the following procedure shall apply:

- A replacement Personal Danger Tag is to be completed with the replacing person's details on the tag and reaffixed to the isolation point. It shall be clearly marked as a **REPLACEMENT**.
- The relevant *Supervisor* is to be notified immediately.
- The person whose Personal Danger Tag was removed by mistake must be located and asked to complete another Personal Danger Tag.
- Only then is the replacement Personal Danger Tag to be removed.

9.2 Isolation of Mobile Equipment and Light Vehicles

All light vehicles (LV), and mobile equipment (ME) that is used for transport, production and maintenance in and around the site must have Proven Isolation before any maintenance work is carried out on that equipment. For LV's this can be done with the portable battery isolator (see appendix)

9.2.1 Safely Parking and Immobilising Mobile Equipment and Light Vehicles

Regardless of the type of isolation to be used, prior to carrying out any inspections or fault finding, or starting work on a LV or ME, it must be parked fundamentally stable and Isolated.

This means that the mobile equipment, with all braking systems disengaged and with the transmission in neutral, will not move due to the forces of gravity.

Fundamental stability can be achieved by using the following methods:

- Engineered parking bumps
- Earthen humps
- Spoon or V drains
- Placing Wheel Chocks
- Lowering ground engaging tools (where fitted)

Additional to being parked fundamentally stable, the engine must be turned off with the transmission engaged in park or first gear.

9.2.2 Perform Light Vehicle Isolation

When performing maintenance activities on light vehicles, as a minimum the isolation shall consist of a battery terminal separation via a lock out device, Red Personal Lock and a completed Personal Danger Tag.

- For onsite maintenance activities the battery must be isolated with an approved isolation device that allows for the fitting of Personal Locks to complete the isolation.
- For offsite emergency repairs (e.g. changing a punctured tyre) and for vehicle inspections (regardless of location), the keys must be removed from the ignition and kept with the person doing the inspection/repair.
- Prestart – When conducting prestart where any part of your body is inside the engine bay the keys must be removed from the ignition and kept with the person doing the checks.

9.2.3 Determine Isolation Approach – Surface Mobile Equipment

When performing maintenance activities for all Heavy Vehicles and Surface Mobile Equipment, the equipment shall be isolated.

Persons holding an *Isolator* status shall isolate Heavy Vehicles and Surface Mobile Equipment at the main battery isolator with an approved isolation device along with the required Red Personal Locks and Personal Danger tags. There are two (2) types of isolations that can be used for SME:

- Inspection Isolation; and
- Complete Energy Isolation.

Inspection Isolation (Starter motor only) provides limited isolation and the activities able to be performed are therefore limited to:

- Pre-Start Inspections – safety checks such as tyres, lighting, and checks for any damage.
- Electrical fault-finding but not repair.
- Other tasks supported by an approved JHA or work instruction.

If there is any doubt regarding the applicability of an Inspection Isolation, then a Complete Energy Isolation must be implemented.

Complete Energy Isolation considers all potential energy sources and requires each isolation to be set, proven and locked. Complete Energy Isolation is required for all maintenance and repair activities including breakdowns.

Complete energy isolations are performed by the person performing the work by placing personal locks on each isolation point as determined by the scope of work. In addition to the main machine isolator, isolation points may include:

- Any raised implements that have an associated isolation point (securing pin); and
- Articulation points.

9.2.4 Fault-finding without isolation

In situations where fault finding is needed without isolation, but with the machine not running, the task must have a supporting, approved SWMS or JHA. Once fault finding is complete, any repairs to the machine must be performed with the isolation set, proven and locked as previously described.

9.2.5 Testing of Mobile Equipment or Light Vehicles

All inspections that require a machine to be running whilst people enter the footprint, must have a supporting, approved JHA or work instruction. If as a result of the testing further

repairs to the machine must be performed, isolation must set, proven and locked as previously described

9.2.6 Marine Vessels

When performing maintenance activities where there is the potential for entanglement or unplanned energisation, persons holding a Level 2 or *3 Isolator* status shall isolate the vessel at the battery isolator, where fitted, or use a battery terminal separation via an approved isolation device, with a Red Personal Lock and a Personal Danger Tag.

9.3 Linking Multiple Isolation Points

Isolation Locks may be used to secure multiple isolation points in conjunction with lanyards, locking bars or other devices provided the Level 2/3 Isolator:

- Lists each isolation point (separately) on the Permit along with its corresponding Isolation Lock number.
- Separately proves each isolation point.
- Confirms the device used to secure the multiple points guards against the accidental activation of each Level 1 Isolation point.
- Lanyard linking device not permitted for use in substations.

9.4 Automated Isolation Devices

In instances where an isolation point is controlled by some type of automated actuator, e.g. hydraulic ram or pneumatic actuator, the isolation point itself should be engineered to allow direct locking in the isolated position. Only correctly rated mechanical devices such as secured pins, slings or chains must be used to secure these isolators.

- Where direct locking isn't available, the energy supply to the actuator must be isolated and locked and any residual energy dissipated. Any drains used must also be locked in the open position.
- Unless the energy supply is immediately adjacent to the actuating device, the device itself must have an identifier locked in place and included on the Lockbox Permit. The intention being to prevent work being carried out on the actuator whilst the isolation is in place.

Note: Only automated devices that fail into the isolating position may be used as isolation points.

9.5 Conveyor Belt Isolations

When establishing isolation for conveyor belt maintenance that will require belt de-tensioning:

- Where the conveyor design allows for (in-built) de-tensioning the level 2 / 3 isolator must lock the Gravity Take Up in the de-tensioned position and include these points on the Lockbox Permit.
- If there is no positive isolation point, a Risk Assessment must be completed
- On isolation permit, where a come along / chain is being used to secure conveyor belt, visual inspection is to be confirmed, as well as rated safety chains in place.

The Commissioning and Testing Phase process must be utilised when:

- There is a need to move the belt; or
- The belt repair is complete, and Isolation Lock removal is necessary to re-tension the belt, and to carry out belt testing.

9.6 Confined Space Isolations

- All points of isolation associated with a Confined Space must be positive isolation points i.e. blinds, blanks, spool removal, but NOT valves.
- All entry doors to a Confined Space must be in the open position when people are working inside, with a sentry / stand by person present.
- Where ventilation openings have been identified as necessary to create and maintain a safe atmosphere, these must be locked in the open position.

9.7 Pneumatic Isolations

When isolating a pneumatic system using a valve as the isolation point, both the valve and the drain used to prove (de-pressure) the isolation must be locked i.e. the valve isolating the work area from the supply header is obviously locked in the isolated (closed) position, AND the drain must be locked in the open position.

9.8 Cargo Contamination Prevention

Should there be a risk of contamination of products between conveying systems, the Stevedore must switch off and place a cargo Contamination Prevention Lock (Purple) onto identified conveyors.

Note: This process does NOT provide a Proven Isolation. Workers and equipment are not protected by the placement of this lock.

9.9 Placing equipment out of service

If potential for hazardous exposure remains at the end of the work/shift; .

An Out-of-Service Lock and Tag must be placed on the equipment and the associated isolation (Lockbox). The Out-of-Service tag must be attached to the relevant isolation point and provide sufficient information to convey the reason as to why the equipment is Out-of-Service and the hazard that is present. Examples include:

- Where hydraulic lines have been left disconnected.
- Where electric terminations have been left disconnected.

Note: The only person who can remove an Out-of-Service Lock or Tag is a person who is competent in the repair of the equipment.

9.10 Mothballing equipment

In situations where equipment is to be placed Out-of-Service for greater than six (6) months or as deemed necessary, the Isolator must replace the Isolation Lock with an Out-of-Service Lock and follow the Out-of-Service process as described in Section above.

10 CRITICAL SYSTEMS IMPAIRMENT

The intent is to ensure that when work is to be undertaken on plant or infrastructure systems deemed as critical, the actions and activity is well planned to keep all impairments to a minimum duration, risks are controlled, that changes are communicated, and new or emerging risks are appropriately managed throughout the impairment period.

Critical Systems work applies to (but not limited to): installation, repairs or adjustments such as calibrations and / or testing that takes the equipment out of service or otherwise renders the equipment partly or fully ineffective. Critical plant and or systems include (but may not be limited to):

- Fire pumps, ringmains, hydrants or hose reel systems.
- Fire detection, warning and alarm systems.

- Fire information panels.
- Fire extinguishing automatic systems (gaseous and water deluge).
- Air conditioning systems in critical air control environments (such as server rooms).
- Power supplies to security CCTV.

This requirement applies equally to employees and Contractors working at Southern Ports.

10.1 Procedural Steps to Impairing Critical Systems

Task Supervisor and Worker are to consider and determine through risk assessment processes if system to be worked upon are a critical system. Consult with others, including Health and Safety for correct determination if unsure.

Prior consultation with affected stakeholders is an important step to ensure stakeholders are aware of the impending impairment, and new or changed conditions and controls are understood and agreed, for the duration of the impairment. Internal Alert or notification should be a minimum of 1 working business days' notice.

Where a critical impairment may introduce additional or new hazards, prior to implementing the impairment, additional and appropriate forms of controls should be implemented.

This can include for example, where a fire system is to be impaired, consult with others affected by the change and issue an instruction or notification that no hot work may be conducted during the period of impairment, or include added fire watch duties, or make appropriate temporary water supplies and instruction for use, available; or where the air conditioner is removed from service in a computer server room, notify the Port IT department, and implement additional thermal monitoring and know what a safe high temperature point is; or for security CCTV outages, notification to Port Security Officer.

Plan the activity, ensure all trades are appropriate and available, tooling and resources needed to complete the task will be onsite and in readiness. This minimises interruptions and reduces the overall time the critical system is impaired.

Knowing if and which external parties require notification of impairment of critical systems is an important and key step. Specific requirements for fire protection and detection impairment include:

a. Department of Fire and Emergency Services (https://forms.digital.wa.gov.au/222481086452051) online notification system, where the impairment is for **greater than 24 hours**. A minimum notification of 72 hours is required; and

b. Insurance Commission of Western Australia Fire Protection Impairment Notification online form (https://www.icwa.wa.gov.au/__data/assets/pdf_file/0018/10629/Fire-Protection-Impairment.pdf) is required when fire protection systems (sprinkler systems, fire detection system, gaseous agent fire suppression systems etc.) are impaired or isolated for **more than 12 consecutive hours and will affect more than 10% of the Level 3 or building**. A minimum of 48 hours' notice is required.

10.2 Permit Steps to Critical Systems Impairment

10.2.1 Task planning

Before a critical system may be impaired, the task, consultation and appropriate external and internal notifications are to be planned and completed.

10.2.2 Risk assessment

A (team) risk assessment is completed, including documented steps of pre-planning, stakeholder consultation, and appropriate notifications have been made.

10.2.3 Permit authorised impairment

All critical system impairment will be conducted and controlled through the use and issue of a Southern Ports Critical System Impairment Permit, issued by an Approved Authoriser. This ensures appropriate controls are put in place prior to a critical system impairment; appropriate consultation, communication and notification of a critical impairment have been made; allows for tracking of the impairment across shifts, through to completion within appropriate time frames; and ensures system restoration upon completion.

11 REFERENCES AND RECORDS MANAGEMENT

11.1 Referenced Documents

11.1.1 Legislation and Codes of Practice

Southern Ports maintains a subscription to SafetyLaw via Environment Essentials (www.enviroessentials.com.au) to ensure it has a listing of current applicable Work Health and Safety and Environmental Legislation.

Key legislation and codes of practice relevant to this Procedure are shown in Table 3 below.

Table 3: Legislation and Codes of Practice and Australian Standards

Reference	Title
WA	Electricity Act 1945
WA	Electricity Regulations 1947
AS/NZS 3000: 2018	Electrical Installations (Wiring Rules)
AS 1319:1994 (2018)	Safety signs for the occupational environment
ASNZS 4836:2023	Safe Work on or near LV Electrical Installations
AS4024: series	Safety of Machinery
WA	Work Health and Safety (General) Regulations 2022
WA	Work Health and Safety Act 2020

11.1.2 *Southern Ports Documents*

Southern Ports documents relevant to this Procedure are shown in Table 4 below.

Table 4: Southern Ports Documents

Reference	Title
	Isolation Plan and Permit
	Commissioning Test and control Permit
	Isolation plan / procedures (need to be developed)
	Removal of red personal lock and personal danger tag authorisation form
	Critical System Impairment Permit

12 DEFINITIONS

Terms used in this Procedure are defined in Table 5 below.

Table 5: Definitions

Term	Definition
Authority to Work	An Authority to Work (sometimes known as an Authorization to Work or Permit to Work) is a document approved by an authorised and competent Southern Ports *Supervisor*, *Manager* or *Superintendent* to authorise the task specified on the Permit to be undertaken by a worker who works under the control of Southern Ports.
Commissioning Phase Testing and Control	Commissioning Phase Testing and Control is not limited to commissioning, but may also include testing, fault finding, bridging, calibrating and tracking. Is used to administratively manage the risk associated with all fixed or mobile equipment that cannot be fully isolated to achieve a zero-energy state, during either a testing, fault finding, calibrating or commissioning phase where there is a need to control the number of persons in an area due to the potential for uncontrolled energy releases.
Control Plan	A document that establishes the standards, controls and guidelines that apply to a workgroup when undertaking tasks in a Commissioning Phase. The detail of the Control Plan will be determined by the complexity of the works assessed by a risk assessment during the planning process. For example, a shutdown where a group of people are working on different activities in the same work area, the Control Plan may be set out in the form of a locked Gantt Chart.
Heavy Vehicle	Trucks and buses that are designed for use on public roads such as, rigid and articulated trucks greater than 4.5 tonnes (including associated trailers) and buses (over 12 seats). Also included in this category but not limited to are forklifts, elevated work platforms, backhoes, skid steer loaders, prime movers, mobile cranes and integrated tool carriers fitted with an attachment not designed for earthmoving.
High Voltage	As defined in AS/NZS 3000:2018 Electrical Installations (Wiring Rules).
Isolate / Isolation	Disconnect, barricade and lock or securing of all energy sources to achieve a zero-energy state to a piece of plant, equipment or system (associated with a task). An emergency stop button is not an isolation point. If full current isolation cannot be achieved, a risk assessment for alternate isolation must be approved by Maintenance Manager and the Regional Manager
Light Vehicle	Includes, but are not limited to a motor vehicle that can be registered for use on a public road under 4.5 tonnes gross vehicle mass.
Lockout Device	A device that has the means to physically isolate hazardous energy sources which includes but is not limited to a padlock, slip-plate, chain or

Table 5: Definitions

Term	Definition
	other physical devices to facilitate the fitment of a Locking Device for persons to lockout energy sources.
May, Should	Recommended, but discretionary.
Must, Shall, Will	Mandatory.
Responsible Person	The *Responsible Person* is the person who has functional control of the workplace or area, for example the *Terminal Supervisor*, *Maintenance Supervisor* or *Person in Charge*.
Subject Matter Expert	A person who possesses deep and specialised knowledge in a particular subject, field, or domain. With competencies developed through years of on-the-job experience and education in their field.
Surface Mobile Equipment	Self-propelled mobile equipment for surface operations such as container forklifts and equipment that is primarily intended for bulk earthmoving and not primarily designed for use on public roads.
Test for Zero energy	A test and try for confirmation of a zero-energy state of the plant / equipment or control of mechanical or potential stored energy.
Verification	Process of confirming the absence or presence of something, for the purposes of this procedure it is the process of confirming isolations are in place and effective.

APPENDIX A – ENERGY SOURCES

Energy may consist of many sources that have the potential to drive, move, activate or energise any plant, equipment or system. These energy sources are shown in the below table.

Table 6: Energy Sources Table

Energy Source		Examples
Mechanical		Components of mechanical objects with potential to move or currently in motion; Mechanical couplings, gearing, linkages, drive shafts, springs, conveyors, rail. rotating equipment, compressed springs, drive belts, conveyors and motors
Chemical		Flammable vapours, reactive hazards, carcinogens or other toxic compounds, corrosives, pyrophoric, combustibles, oxygen-deficient atmospheres, welding fumes and dusts
Electrical		Static charges, power lines, transformers, lightning, energised equipment, wiring and batteries.
Gravitational		Gravity take up towers' counterweights, telescopic chutes, suspended loads, clearing hang-ups. Falling object, collapsing roof, and a body tripping or falling
Motion (kinetic)		Objects in motion: vehicles, vessel or equipment movement, flowing water, wind, body positioning (lifting, straining, bending)
Pressure (stored)		Substances under pressure: Ship mooring lines, accumulators, springs, inflating tyres, pressure vessels. Pressure piping, compressed cylinders, control lines, vessels, tanks, hoses and pneumatic/ hydraulic equipment
Radiation		Visible light, welding arc, lasers, microwave, infra-red, ultraviolet, and X-rays.
Temperature		Open flame, hot or cold surfaces, solar rays

Prior to repairing, maintaining, clearing metal detects, adjusting or cleaning of plant, equipment or systems, all possible energy sources that have the potential to cause injury, damage or uncontrolled release are to be assessed and isolated using the most effective method possible to achieve a zero-energy state.

Note A conveyor pull wire or lanyard is the vertical boundary. Should you or a part of your body or tools and equipment be required beyond this point to conduct a task, an isolation at the Motor Control Centre shall be required.

APPENDIX B – METHODS OF PROVING ISOLATIONS

I. PROVING PROCESS ISOLATIONS (FLUIDS, AIR, HYDRAULICS)

- Isolate the process stream to be worked on and prove the isolation by drainage.
- Ensure each isolation device is in the correct position.
- Test all valves are seated against working pressure.
- Observe all drains to ensure the expected volume has drained, the drain valve remains clear and that the flow has stopped.
- Where necessary, flush or purge the system.

II. MECHANICAL ISOLATION The following does not prove isolation, it establishes an example form of mechanical isolation)

- Where there is potential for plant to hold mechanical or stored energy a mechanical locking device suitably engineered and designed to control stored energy must be fitted prior to the placement of the appropriate type of Isolation Lock and Tag. For example, conveyors, chute diverters, positioners, belt clamps, gravity take up towers (GTUs) / counterweight.
- Secondary retention must be implemented to ensure that if the first method of isolation fails there is a failsafe.
- Original equipment manufacturers specifications/ requirements must be incorporated into the isolations.

III. PROVING ELECTRICAL ISOLATIONS (FOR ELECTRICAL PURPOSES)

- Where electrical workers will be conducting work on uninsulated electrical apparatus, the electrical tradesperson must Isolate and test for zero energy prior to works commence.
- The electrician must record on the Lockbox Permit (for Group Isolations) evidence of the test for zero energy or earthing process.
- Refer to the Electrical Access and High Voltage Procedure for further detail when working on Electrical Distribution Systems or High Voltage Equipment.

IV. PROVING ELECTRICAL ISOLATIONS (FOR MECHANICAL OR OPERATIONS PURPOSES ONLY)

- All electrical breakers must be open and isolation points locked, then tested by trying to start the equipment from the field and, where necessary, from the control system.
- Check the three (3) phase lights (where fitted). All phase lights must be observed to go from On to Off – if a light has failed, this check must not be used until all lights are operational.
- Where equipment has been damaged and either a field or control system test cannot be done, the person isolating must request an electrician to test for zero energy before locking the drive.

APPENDIX C – ISOLATION MATRIX

Table 7: Isolation level, hardware and training matrix

<table>
<tr><td colspan="2"></td><td colspan="3">Types of Competency</td></tr>
<tr><td colspan="2"></td><td>Level 3 Isolator</td><td>Level 2 Isolator</td><td>Personal Lock Holder</td></tr>
<tr><td colspan="2"></td><td>Isolates indefinite number of points and sets Lockbox</td><td>For up to 6 people on up to 6 points on a single task</td><td>Only Isolates single point of isolation for themselves</td></tr>
<tr><td rowspan="6">Type of Isolation</td><td rowspan="2">Level 1 Isolation</td><td rowspan="2"></td><td rowspan="2"></td><td>  </td></tr>
<tr><td>Isolation Point</td></tr>
<tr><td rowspan="3">Level 2 Isolation</td><td rowspan="2"></td><td>  </td><td rowspan="2"></td></tr>
<tr><td>Each isolation point</td></tr>
<tr><td></td><td>  </td><td>  </td></tr>
<tr><td colspan="3">Attach to hasp after energy isolated and Isolator applies orange lock to hasp</td></tr>
<tr><td rowspan="4">Level 3 Isolation
When Lockbox is used</td><td>  </td><td></td><td></td></tr>
<tr><td>Each isolation point</td><td></td><td></td></tr>
<tr><td>  </td><td>  </td><td>  </td></tr>
<tr><td>Secures the Lockbox</td><td colspan="2">Attach to Fixed Lockbox or on 12-hole hasp applied to the fixed lockbox.</td></tr>
</table>

APPENDIX D – ISOLATION & LOCKOUT EQUIPMENT TABLE

Table 8: Isolation & Lockout Equipment Table

Tag or Hardware	Use
Figure 1: Information Tag 	• An Information Tag is white with blue writing and is used to display written general information about an item or situation. It may also be used to convey equipment status that may not warrant a Yellow Out of Service Tag. • An Information Tag may be used to identify and label components such as, hydraulic lines, electrical wiring, air and water lines during maintenance or installation, on Caution or Danger tape or barricading to explain the reason for the barricade or tape and the name of the contact person. • The Information Tag must be printed legibly and clearly visible with the required details at all times. • The Information Tag is also to be completed by a Southern Ports Tradesperson when isolating for a Southern Ports Apprentice trainee or work placement student by applying it to the apprentice, trainee or work placement student Red Personal Lock and Personal Danger Tag. (see Section 4.3.1 Individual Isolators Responsible for Apprentices and Trainees) **Note** You must destroy the Information Tag after removal.
Figure 2: Out of Service Lock and Tag 	• An Out of Service Lock is yellow and accompanied by an out of service Tag, which is a yellow and black notification tag. Use of these informs that the equipment item shall not be used until cleared for safe operation by a Competent Person. • An Out of Service Lock and Tag indicates that equipment may be faulty, in need of repair or inspection and that damage may occur if the equipment is utilised. It may be placed on an isolation point where maintenance work is incomplete and when there is a risk to equipment if it is started or operated prior to it being repaired or disposed of. • This lock and tag may be placed by anyone but can only be removed by a *Competent Person* (the person assigned to repair or assess the item). An Out of Service Tag does not provide personal protection. • The Out of Service Tag must be printed legibly and clearly visible with the required details at all times. **Note** You must destroy the Out of Service Tag after removal. **Note** Yellow locks are all keyed alike, only a competent person may hold a key and remove a yellow isolation lock.

Table 8: Isolation & Lockout Equipment Table

Tag or Hardware	Use
	Keys for yellow locks stored in central location monitored by designated competent person, items placed out of services are noted on the permit register.
Figure 3: Red Personal Lock and Personal Danger Tag 	A Red Personal Lock is used in conjunction with a Personal Danger Tag to protect an individual that is working or cleaning an isolated piece of equipment. • The Red Personal Lock and Personal Danger Tag are placed on de-energised plant or equipment before a person begins a task and whenever there is danger of personal injury from unexpected operation, movement or release of energy. • Each person must attach their own Red Personal Lock and Personal Danger Tag. • Red Personal Locks and Personal Danger Tags must only be fixed to isolation points once de-energised, or to an effective isolation device that has been applied and a zero-energy state exists. • Locks and keys shall NOT be swapped between workers including the duplication of keys. • Each person must remove their own Red Personal Lock and Personal Danger Tag on the completion of the job, or completion of their component of the work, and at the end of the shift before they leave site. • Red locks are unique to the individual (may be keyed alike up to 6 per set) A Personal Danger Tag is a red and white tag used to identify an individual that is working or cleaning an isolated piece of equipment • The Personal Danger Tag shall be scribed with the full name of the person, phone contact, date, and the required details of the isolation, and be secured to your Red Personal Lock. • The Disposable Personal Danger Tag shall be destroyed when work has been completed for the shift. • The Reusable Personal Danger Tag shall have the date and isolation details removed when the work has been completed for the shift.
Figure 4: Isolation Hasps 	A 6 worker Isolation hasp • has 7 holes, 6 for each worker, including Level 2 isolator who applies both their personal lock (if they are working on the equipment) and/or the orange group isolation lock

Figure 5 Level 2 Isolation Orange Lock and Tag	• Orange Isolation lock is used for Level 2 isolation is in the following circumstance:
	  ○ More than two fewer than 6 Personal Lock Holder on hasps in the field
	  ○ confined space entry:
	• Orange locks are keyed alike, Any Level 2 or 3 isolator may unlock any orange isolation lock

Table 8: Isolation & Lockout Equipment Table

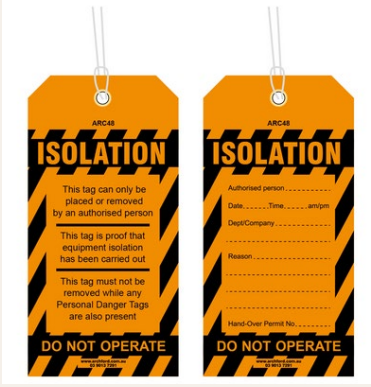
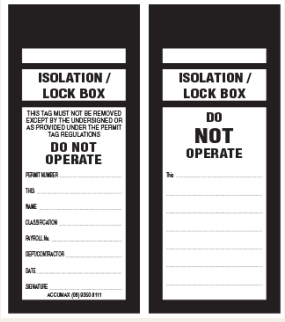
Tag or Hardware	Use
 	• They indicate to individuals, who did not personally perform the isolation, the isolation has been undertaken and a zero-energy state exists, that energy has been released or controlled and the isolation has been completed and confirmed. • The Orange Isolation Tag is placed onto an Orange Isolation Lock at the points of isolation; • Orange Isolation Tags and Locks shall only be applied by authorised competent Level 2 Isolators. 6 Orange locks keyed alike issued with a portable lock box, stored in a central location and signed out for the task; - Where the orange and red locks are used on hasps, the portable lock box does not need to be used. - Only where the orange and or red locks are not able to be placed on the isolation point due to type of isolation device, the portable lock box is used to apply red locks. (example, breaker clips which can only support the weight of one lock)
Figure 6: Level 3 Isolation Blue Lock and Tag  	• Consisting of ten (10) Blue Lockbox Lock which are applied in conjunction with Blue Isolation Tags by the Level 3 Isolator to the isolation point(s) as listed on the Isolation Confirmation Plan and Sign-on form. • Blue Locks shall only be applied by competent Level 3 Isolators and used in a Lockbox type Isolation. • Blue locks are unique to the Lockbox (keyed alike up to 10 per set) • The Blue Isolation Tag is placed by a Level 3 Isolator onto a Blue Isolation Lock at the points of isolation;
Figure 7: Level 3 Black Lockbox Lock and Tag  	• Black Isolation locks and tags are used to secure the Lockboxes • Black Isolation Locks are keyed alike and may only be applied by a Level 3 Isolator
Figure 8: Commissioning and Test Tag	• The Commissioning and Test Tag is applied in conjunction with an approved Commissioning Testing Control Sheet • It is administered by an Isolator to indicate fault finding, equipment / plant being tested, calibration or undergoing a commissioning phase.

Table 8: Isolation & Lockout Equipment Table

Tag or Hardware	Use
	• It can be attached to barricading preventing access to an area and isolation points or equipment by a competent Isolator.

Figure 9: Fixed Lockbox
 
	• The purpose of the fixed lockbox is to provide a lockable container where there are multiple isolation points and/or more than 6 workers (other than the Level 3 Isolator) working on a single isolation, providing a central point for workgroup members to lock onto, it;
	  ○ Stores applied individual locks
	  ○ Keys for applied blue lockbox locks
	  ○ Unused blue locks
	  ○ The Lockbox Permit that has been approved and is attached to the lockbox in a weather proof sleeve with all support documents.
	• The Lockbox is secured with by a Level 3 Isolator with an orange group isolation lock.

Figure 10: Portable Lockbox 	• The purpose of the portable lock box is to provide mobility for level 2 isolations only, where there are no more than 6 workers, and where hasps are not able to be used due to type of isolation device • The Lockbox is secured with by a Level 2 Isolator with an orange group isolation lock. • Portable lock boxes are not to be used for level 3 isolations
Level 2 and 3 Isolation Confirmation Plan and Sign-on forms	• This documents the isolations and de-isolation processes and worker sign on and off when working under protection of a lockbox • Used by a Level 2/3 Isolator to record the details of the isolations and for level 3 isolations is also used to verify that isolations have been performed correctly by another *Level 3 Isolator*.

Table 8: Isolation & Lockout Equipment Table

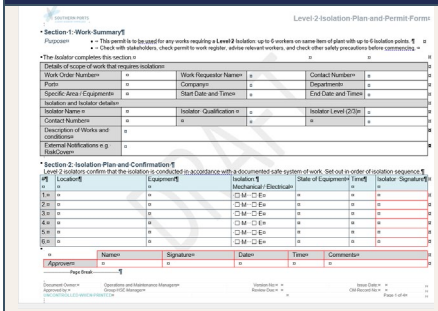
Tag or Hardware	Use
	• The Isolation Confirmation Plan and Sign-on form shall be secured in a Weatherproof sleeve on the outside of the lockbox along with supporting documents (JHA / SWMS etc). • Identifies isolation details including ○ Isolation type ○ Worker performing isolation ○ Equipment sequence of isolation / restoration ○ Handover, suspension, continuing work change over and comments ○ Lock holder sign on and off ○ Statement of completion
Figure 10: Weatherproof sleeve 	• Kept at the entry point to the area of work isolations applied for level 1 & 2 isolations. • For Level 3 isolations, attached to outside of lockbox with isolation plan inside, additional weather proof sleeves to hold task SWMS/JHA etc kept at work front. • Isolation paperwork includes; ○ Authority to Work / Permit to work ○ Safe Work Method Statement ○ Job Hazard Analysis ○ Isolation Confirmation Plan and Sign-on form ○ Sign-on / signoff sheet ○ Workgroup supervisor hand over
Other Isolation lock examples	
Adjustable Lanyard 	Electrical plug lockout 
Gate valve isolation lockout 	Standard ball valve isolation 
Battery Cable Lockout 	Circuit breaker isolation clips

Table 8: Isolation & Lockout Equipment Table

Tag or Hardware	Use