

Procedure

Work Health and Safety

Energy tag and lockout

Document number: PRO-00014

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1. Purpose

Seqwater is committed to the health and safety of all people at the workplace. This procedure forms part of Seqwater's Permit Access Safety System (PASS) by defining the processes to isolate energy sources to allow workers to safely perform work activities at Seqwater workplaces.

This procedure supports the requirements described in Element 9 – Operational control of Seqwater's Work Health and Safety (WHS) Management System Framework.

This procedure adopts and is consistent with the requirements outlined in:

- Work Health and Safety Act 2011 (Qld)
- Work Health and Safety Regulation 2011 (Qld)
- Electrical Safety Act 2002 (Qld)
- Electrical Safety Regulation 2013 (Qld)
- Electrical Safety Code of Practice 2013 Managing electrical risks in the workplace (Qld)

2. Scope

This procedure applies to all Seqwater workers, business groups and work activities.

3. Roles and Responsibilities

Role	Responsibilities
Managers	 Communicate and implement the requirements of this procedure within their area of responsibility.
Line supervisor	 Implement the requirements of this procedure within their area of responsibility.
	 Complete workplace monitoring activities to verify the implementation and effectiveness of this procedure.
	 Facilitate the provision of appropriate information, instruction and training to each of their employees for planning and performing isolations.
Access officer	 Manage access to workplaces within their area of responsibility.
	 Liaise with workers planning and performing isolations to manage the impacts of the isolations on normal workplace operations.
	• Enter and manage information in the PASS CIS Module.
Work coordinator	 Plan work activities to identify all isolation and risk control requirements.
	 Confirm the authorised isolator/s that will be managing the isolation.
	 Manage and monitor workers performing work activities under the control of an isolation.
	 Make sure all isolations and risk controls are in place prior to the work activity being undertaken to enable the work

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Role	Responsibilities
	activity to be safely performed.
	When a work coordinator also performs the role of an isolation officer, the work coordinator assumes the responsibilities applicable to that role as well.
Authorised Isolator	Manage and approve isolation arrangements.
	 Provide advice to isolation officers, Project Managers and Principal Contractors on isolation requirements and the operational impacts of isolations.
	• Develop, review and approve isolation instructions relevant to their qualifications for the sites that they have been authorised for.
	• Perform isolations relevant to their qualifications on sites for which they have been authorised for.
Isolation officer	 Obtain approval for isolation arrangements from a relevant authorised isolator.
	• Identify isolation points required to complete the isolation.
	 Identify isolation equipment required to complete the isolation.
	 Develop isolation instructions to document the steps required to successfully complete an isolation.
	 Perform all isolations in accordance with the isolation instruction.
	• Confirm the status of isolations with the work coordinator and access officer.
WHS team	 Provide WHS resources to support the implementation and monitoring of this procedure.
	 Undertake reviews and inspections of work conducted at Seqwater workplaces to verify compliance with the requirements of this procedure.
	 Provide guidance and/or training on energy tag and lock out as required or when requested.
Workers	• Comply with all site access requirements when entering and leaving site.
	 Hold the appropriate licences and qualifications for the work activity being performed.
	 Confirm that all isolations have been implemented and are effective before commencing a work activity under the control of an isolation.
	• Attach a blue personal lock and personal danger tag to the lock board before commencing the work activity under the control of the isolation.
	 Comply with all risk controls defined in the JSEA/SWMS or high-risk work permits.
	 Report all incidents to Seqwater's incident hotline (07) 3270 4040.

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4. Isolation framework

4.1 Responsibly for isolations on operational sites

Seqwater Operations Group is responsible for managing and approving isolation arrangements for all isolations performed on Seqwater operational sites.

4.2 Hazards associated with plant

During normal operations, workers are protected from plant hazards through risk controls such as shielding or guarding of moving parts, or because the energy source associated with the item of plant is contained within the plant, such as pressurised water or air contained in a pipeline or vessel.

When workers are required to perform a work activity on the item of plant, the risk controls may have to be removed to perform the work. Where risk controls are removed from an item of plant, alternate methods of protecting the worker from plant hazards must be implemented.

When performing a work activity on an item of plant, protection may be required from:

- movement or operation of the plant
- contact with energy used to operate the plant
- contact with energy produced or carried by the plant
- contact with energy stored within the plant.

When performing a work activity on an item of plant, the following forms of energy may be encountered:

- electrical energy (electrical power supply, static charges, batteries, solar feed, capacitors)
- mechanical energy (moving or rotating machinery)
- pressure energy (water, compressed air, gas, hydraulic fluid)
- gravitational energy (moving vehicles, counterweights)
- potential energy (springs)
- thermal energy (heat, cold)
- noise
- non-ionising radiation (microwaves).

Work on de-energised electrical equipment shall only proceed if the electrical equipment is isolated and any other exposed conductors or conductive parts in the work area are either:

- de-energised and isolated; or
- separated by barriers or are an appropriate distance based on risk assessment (workers should refer to the Electrical Safety Procedure (PRO-00006) for exclusion zones for electrical parts).

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Processes for identifying and managing hazards are established in the WHS Hazard Identification and Risk Management Procedure (<u>PRO-00657</u>).

4.3 Isolation processes

When performing a work activity where the isolation of an energy source is required, the following process is used:

- 1. Plan the isolation
- 2. Identify isolation points
- 3. Stop the plant (where required)
- 4. Isolate energy sources and discharge any stored energy (in a controlled manner)
- 5. Attach isolation locks and tags (where possible or otherwise ensure that the plant cannot be re-energised)
- 6. Verify isolations are effective (i.e. test for dead / prove for dead)
- 7. Perform work activity
- 8. Remove isolation locks and tags
- 9. Reinstate energy sources (in a controlled manner)
- 10. Test and confirm operational status of plant
- 11. Return isolation equipment.

The specific requirements for each isolation will vary depending on the plant being isolated and the complexity of the required isolation. To address these requirements Seqwater use four isolation processes:

- simple isolation
- complex isolation
- tiered isolation
- High Voltage (HV) isolation (Note the processes used for HV isolation do not form part of this procedure. Workers should refer to the Electrical Safety Procedure (<u>PRO-00006</u>) for HV isolation requirements).

Each isolation will need to be suitable to support ongoing operational requirements and be appropriate for the particular work activity being performed.

Examples of each type of isolation are included in Appendix A.

4.3.1 Simple isolation process requirements

The simple isolation process is used in operational areas, when the isolation of the energy source **<u>can</u>** be achieved by either:

- unplugging the energy supply; or
- removing an ignition key (for mobile plant); or
- switching a proven single point isolator **to perform operational maintenance** (Note: the proven single point isolator could be an electrical isolation switch or an isolation valve).

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NOTE: Operational maintenance is the care and minor maintenance of plant using procedures that do not require detailed technical knowledge of the plant's or system's function and design. Operational maintenance consists of inspecting, cleaning, servicing, preserving, lubricating, and adjusting, as required.

Where the requirements for a simple isolation cannot be met, a complex or tiered isolation process must be implemented.

Simple isolations do not require an isolation instruction, however the steps required to isolate, verify the isolation is effective, de-isolate and reinstate the item of plant must be clearly documented in a Job Plan or JSEA/SWMS for the work activity being performed.

Job Plans or JSEA/SWMS for simple isolations that will be performed on assets at operational sites must be developed or reviewed by an authorised isolator. This requirement has been included to manage the operational impacts of the simple isolation.

Where multiple workers are working under the control of a simple isolation, a lock board must be used to secure the key to the isolation lock for the duration of the work activity. All workers must affix their blue personal lock to the lock board whenever they are working under the control of a simple isolation.

Examples of work activities that may be performed under the control of a simple isolation include:

- maintenance of a sump pump where the electrical lead for the pump can be unplugged from a General Purpose Outlet (GPO)
- servicing of mobile plant and light vehicles where the key can be removed from the ignition of the plant or vehicle
- operational maintenance on a pump where the electrical supply can be isolated and the isolation secured at the proven local isolator
- test and tag of electrical equipment
- changing a light bulb / fluro tube.

The steps associated with a simple isolation process are detailed in Appendix B.

4.3.2 Complex isolation process requirements

The complex isolation process is used in operational areas, where the requirements for a simple isolation cannot be met, such as when multiple sources of energy need to be isolated to make an item of plant safe.

The steps required for a complex isolation must be documented in an isolation instruction. Refer to section 4.3 for specific requirements for developing isolation instructions.

The complex isolation process must not be used where multiple work activities are being performed by multiple work groups under the control of a single (primary) isolation. In these situations, the tiered isolation process defined in Section 4.3.3 must be used.

Examples of work activities that may be performed under the control of a complex isolation include:

• replacing a scour valve on a trunk main

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- performing annual maintenance on a centrifuge
- replacing a pure water pump
- replacing a hard wired air conditioner in a Seqwater office
- draining and cleaning a reservoir.

The steps associated with a complex isolation process are detailed in Appendix C.

4.3.3 Tiered isolation process requirements

A tiered isolation process is used where multiple work activities are being performed by multiple work groups under the control of a single (primary) isolation.

The tiered isolation process ensures that the primary isolation is not removed until all work activities being performed under the control of subordinate isolations have been completed.

Examples of work activities that require a tiered isolation include:

- shutdown of a Water Treatment Plant (WTP) to perform multiple annual maintenance activities
- isolation of a section of trunk main to allow multiple work activities to be performed simultaneously.

The steps associated with a tiered isolation process are detailed in Appendix D.

4.3.4 High voltage isolations

High voltage isolations must only be performed by qualified and experienced electrical workers.

The process for performing high voltage isolations and the training and qualification requirements for electrical workers performing high voltage isolations are defined in the WHS Electrical Safety Procedure (<u>PRO-00006</u>).

Details of high voltage switching forms used to complete a high voltage isolation must be referenced in the plant isolation instruction for the work activity being performed.

4.4 Isolation instructions

Isolation instructions are used to document the process that will be implemented to protect workers from sources of hazardous energy when performing a complex or tiered isolation. They clearly define the steps required to ensure that all energy sources associated with an item of plant are isolated and/or dissipated, and will continue to be isolated and/or dissipated for the duration of a work activity.

The Isolation Instruction template ($\underline{\mathsf{TEM-00077}}$) is used to document the steps required to isolate energy sources, to verify energy sources are isolated and any stored energy is dissipated, and to reinstate energy sources.

4.4.1 Developing isolation instructions

Isolation instructions must be developed collaboratively to ensure that all isolation points are identified and isolation impacts are considered.

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All isolation instructions developed to isolate assets at operational sites must be developed or reviewed by an authorised isolator. This is to manage the operational impacts of isolations.

The following process is used to develop an isolation instruction:

- 1. Identify the type/s of energy sources to be isolated.
- 2. Confirm who needs to be involved in the development of the isolation instruction, considering the following:
 - a. For isolations that only require operational workers to complete the isolation (e.g. isolating a filter at a WTP to inspect the filter media), the isolation instruction may be developed by operational workers without consulting with any other stakeholders.
 - b. For isolations that require trade specific isolations (i.e. electrical, mechanical), the isolation instruction must be developed collaboratively between the relevant trade/s and operational workers.
 - c. Any required authorised isolators to develop, review or approve the isolation instruction.
- 3. Write the isolation instruction clearly defining:
 - a. The steps required to isolate the item of plant.
 - b. The description and location of the isolation points (refer to section 4.4.4 for asset numbering requirements).
 - c. The process that will be used to verify the isolation (test for dead / prove for dead process).
 - d. The steps required to de-isolate the item of plant.

4.4.2 Saving proven isolation instructions

Once an isolation instruction has been used and proven to be effective in isolating an item of plant it must be saved in TRIM by the isolation officer.

Note: isolation instructions that include isolation points that are not identified by an identification tag (or other identification marker) cannot be saved as a controlled document for future use until appropriate identification tags or other identification markers have been installed.

4.4.3 Using previously developed and proven isolation instructions

All previously developed and proven isolation instructions must be reviewed by an authorised isolator before being used to confirm:

- the isolation instruction is still valid (i.e. to confirm the asset has not been modified or altered in a way that affects the isolation); and
- that the control mechanisms and isolation steps remain appropriate and that there are no modifications or alterations to the plant that could give rise to a new or different risk to health and safety that the existing control measure may not effectively control; and
- the isolation points are numbered in accordance with the isolation instruction (i.e. to confirm that the identification tags or markers have not been changed).

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Where a change is identified, an authorised isolator must be consulted to confirm how the isolation instruction needs to be amended and the version of the isolation instruction stored in TRIM must be updated by the isolation officer with the required amendments.

4.4.4 Asset numbering

Where possible, asset identification numbers should be used to describe isolation points in an isolation instruction.

Where an isolation point does not have an identification tag or other identification marker attached, a request to create a number should be sent to the Asset Systems and Performance at <u>assetinformation@seqwater.com.au</u>

5. **Performing isolations**

5.1 Work activity planning

Work activity planning is critical to successfully completing a work activity. When planning work activities the following should be considered:

- the scope and timing of the work activity (may require a site inspection to confirm work requirements)
- the resources required to perform the work activity (including knowledge, skills, training and qualifications)
- all stakeholders involved in, or impacted by the work activity (including internal and external stakeholders, WHS, environment, communications, etc.)
- the sources of energy, the isolation points and the methods of dissipating stored energy
- the operational impacts associated with the work activity and how the identified operational impacts will be managed (including a rollback plan)
- all risk control requirements to perform the work activity (including JSEA/SWMS, isolation instructions, high-risk work permits, Major Works Permits (MWP), Project Work Permits (PWP), management plans, etc.)
- all approvals required to perform the work activity, including PASS site access approval.

Requirements for addressing specific work planning considerations are defined in the PASS Procedure (<u>PRO-01820</u>).

5.2 Who can perform isolations?

The following table provides a summary of who may perform isolations at Seqwater workplaces:

Type of site	Authorised isolator	Non-authorised isolator
Operational site	May perform any isolation within the scope of their	May perform an isolation with agreement from an authorised



	authorisation.	isolator.
		An authorised isolator must approve the JSEA/SWMS or Isolation Instruction Template that documents the isolation processes.
		(See section 5.2.3)
Principal Contractor site	Agreement to be reac isolator, the Seqwater Representative on hor performed (See section	hed between an authorised [•] Project Manager and the PC w isolations will be managed and on 5.7).
Administrative area within an operational site	May perform any isolation within the scope of their authorisation.	May perform any isolation for which they are appropriately licenced, qualified and experienced. They must liaise with an authorised isolator for the site prior to commencing the isolation (See section 5.8.2).
Administrative areas and residential buildings	N/A	May perform any isolation for which they are appropriately licenced, qualified and experienced (See section 5.8.2).
Administrative areas and residential buildings – portable assets connected via a GPO socket	N/A	Any worker may disconnect a portable asset from a GPO (see section 5.8.1).

5.2.1 Minimum requirements to perform isolations at Seqwater operational sites

Isolations may only be performed at Seqwater sites by workers who meet the following criteria:

- Hold the appropriate qualification for the type of isolation being performed; and
- Have successfully completed the PASS overview module and all isolation training modules.
- 5.2.2 Isolations performed by a worker who is an authorised isolator

Authorised isolators are able to develop isolation instructions on either a JSEA/SWMS (simple isolations only) or Isolation Instruction Template (<u>TEM-00077</u>) and perform isolations when:

- They have been appointed as an authorised isolator for the site where the isolation will be performed; and
- They hold the relevant qualification for the type of isolation being performed.
- 5.2.3 Isolations performed by a worker who is not an authorised isolator

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Where a worker is not an authorised isolator, the following process must be used to perform an isolation:

- 1. The authorised isolator confirms that the person performing the work has the required qualifications and skills to perform the isolation(s).
- 2. The person performing the work consults with the authorised isolator to plan the isolation(s). A documented isolation instruction must be developed on either a JSEA/SWMS (simple isolations only) or Isolation Instruction Template (<u>TEM-00077</u>) to clearly identify the required isolations, responsibility for carrying them out and any hold points that require authorised isolator involvement. The work cannot proceed until the authorised isolator has approved the requirements outlined in the isolation instruction. Input and approval from a number of discipline-specific authorised isolators may be required to plan isolations.
- 3. The person performing the work completes the isolation(s) in line with the agreed isolation instruction, following contact with the access officer/duty operator to confirm that the isolation can proceed.
- 4. The intended work is completed.
- 5. Where required as part of the approved isolation arrangements, evidence of testing is provided to the authorised isolator prior to commencing de-isolation.
- 6. The person performing the work completes the de-isolation in line with the agreed isolation instruction, following contact with the access officer/duty operator to confirm that the de-isolation can proceed.

5.3 Electrical isolation requirements

Specific requirements for performing electrical isolations are defined in the WHS Electrical Safety Procedure (<u>PRO-00006</u>).

5.4 Requirements for handing over isolated plant or equipment

Where plant or equipment has been isolated by an isolation officer who then hands the isolated plant or equipment over to another worker to perform a work activity, the following process and conditions apply:

- 1. The isolation officer isolates the plant or equipment in accordance with the requirements of the JSEA/SWMS (simple isolations only) or isolation instruction.
- 2. The isolation officer verifies the isolation and signs the JSEA/SWMS (simple isolations only) or isolation instruction confirming that the plant or equipment is isolated and the isolation has been proven effective (i.e. test for dead / prove for dead).
- 3. The isolation officer places all keys to the isolation locks into a lock board and places an out of service lock on the lock board, the isolation officer stores the key to the out of service lock in the relevant operations / maintenance depot.
- 4. The isolation officer hands the plant or equipment over to the worker who will be working on the plant or equipment in an out of service state. This is done by handing over the lock board and signed isolation instruction and briefing the worker receiving the plant or equipment on the isolations performed.

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- 5. Prior to working on the out of service plant or equipment, the worker receiving the isolated plant must document and perform their own test for dead prove for dead process to verify that the isolation is effective.
- 6. Once the worker working on the plant has confirmed that the isolation is effective, they secure the keys in the lock board with a personal lock.
- 7. The worker may then work on the plant or equipment.
 - The worker must liaise with the isolation officer if they need to de-isolate the plant or equipment at any time during the work to perform testing.
 - Following completion of the testing, the worker must document and perform a test for dead / prove for dead process to verify that the plant remains isolated prior to performing further work.
- 8. The worker notifies the isolation officer that the work is complete and ready to be handed back to the isolation officer.
- 9. The worker must notify the isolation officer of the work performed on the isolated plant or equipment and where required, provide test certificates for the completed work for the isolation officer's review and sign off.
- 10. When satisfied that the plant or equipment is safe to be returned to service, the isolation officer notifies the worker that the plant or equipment can be handed back.
- 11. The worker removes their personal lock from the lock board and hands the plant or equipment and lock board over to the isolation officer.
- 12. The isolation officer removes the out of service lock from the lock board and the worker or isolation officer then reinstates the plant or equipment in accordance with the JSEA/SWMS (simple isolations only) or isolation instruction.

5.5 Requirements for isolating liquids, gasses and vapours

The preferred method for isolating liquids, gasses or vapours at Seqwater workplaces is through the use of double valve isolations.

5.6 Requirements for isolating confined spaces

Double valve isolations must be implemented for all work activities where there is a risk of engulfment in a confined space so far as is reasonably practicable.

Where a double valve isolation to protect a worker in a confined space from engulfment is not reasonably practicable, additional risk controls must be identified and documented in a JSEA/SWMS (e.g. isolation points being continuously visually monitored, open scour valves being continuously visually monitored, etc.).

All confined space work activities being undertaken under the control of a single point isolation must be approved by a line supervisor prior to any workers entering the confined space.

Isolation measures must not be removed until all work is complete and all workers have left the space.

5.7 Isolations for principal contractor projects

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The appointment of a principal contractor to deliver a project at a Seqwater workplace must be undertaken in accordance with the requirements of the WHS Contractor Management Procedure (<u>PRO-00808</u>) and the WHS General Construction Procedure (<u>PRO-00005</u>).

So far as is reasonably practicable, Seqwater and the Principal Contractor will consult, cooperate and coordinate activities with each other to ensure compliance with their work health and safety duties.

In accordance with the Permit Access Safety System Procedure (PRO-1820), isolation responsibilities and arrangements must be discussed and agreed as part of planning activities. The agreed outcomes of these discussions must be documented in the Principal Contractor's Safety Management Plan.

The following Seqwater tools are available to document these discussions, and confirm isolation responsibilities and arrangements have been agreed:

- Kick off meeting agenda and minutes form (FRM-00803)
- Project Works Permit (<u>FRM-00777</u>).

A key element of the initial planning for a PC project is gaining agreement between the Principal Contractor and Seqwater Operations in relation to the following:

- isolations that Seqwater Operations require management and approval of; and
- isolations which will be the responsibility of the PC.

Where Seqwater is required to perform isolations in connection with a Principal Contractor project:

- an authorised isolator will work with the Seqwater Project Manager and/or Principal Contractor representatives to agree on how isolations will be managed and performed; and
- based on the agreed isolation responsibilities, the processes outlined in sections 5.2.2 or 5.2.3 of this procedure will be applied depending on who will perform the isolation.

All isolations that will be the responsibility of the Principal Contractor will be conducted in accordance with the Principal Contractor's energy tag and lockout system and approved safety management plan.

5.8 Isolations for administration areas and residential buildings

5.8.1 Isolating portable or mobile devices in administration areas and residential buildings

Portable and mobile devices in administration and residential buildings (e.g. phone chargers, computers, photo copiers, toasters, etc.) that are connected to an electrical supply via a GPO socket may be disconnected by any worker.

5.8.2 Isolating fixed plant in administrative areas and residential buildings

Isolations performed on fixed plant in administrative and residential buildings (e.g. air conditioners, light circuits, fire booster pumps, etc.) must be performed by an appropriately licenced, qualified and experienced tradesman.

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Due to the nature of the work undertaken, and the method of engaging contractors to perform work in administrative areas and residential buildings, tradesman performing isolations in these buildings do not need to be assessed as authorised isolators.

Where the administrative area where an isolation is being performed forms part of an operational site (e.g. an office building within a WTP), the tradesman performing the isolation must liaise with an authorised isolator for the site to ensure that isolations will not impact on the operation of the site.

The steps for isolating, testing for dead and de-isolating must be documented on either a JSEA/SWMS or isolation instruction when isolating fixed plant in administrative and residential buildings and appropriate lockout equipment used to secure all isolation points.

5.9 Work that can be performed on plant that is not isolated

5.9.1 Live low voltage electrical work

In certain circumstances it may be necessary to perform a work activity on an item of plant that has not been isolated from electrical energy sources.

Refer to the WHS Electrical Safety Procedure (<u>PRO-00006</u>) for further information on the requirements for performing live electrical work.

Note: Performing a test for dead / prove for dead process on electrical equipment at Seqwater workplaces is considered to be live electrical work. Specific requirements for performing a test for dead / prove for dead process on electrical equipment are defined in section 6 of this procedure.

5.9.2 Dynamic work

In certain circumstances it may be necessary to perform a work activity on an item of plant that is still operating and has not been isolated from energy sources. Work activities such as greasing, making minor adjustments, monitoring, identifying operational issues, etc. may require the item of plant to remain in an energised and operating state whilst the work activity is performed.

Where guards or other plant protection devices need to be removed in order to perform dynamic work, specific risk controls must be implemented to manage the risks of working near moving parts (refer to the process for identifying and managing hazards established in the WHS Hazard Identification and Risk Management Procedure (<u>PRO-00657</u>)).

Any dynamic work activity that exposes a worker to an energy source (other than electrical energy) must be:

- planned by the worker performing the work activity; and
- undertaken in accordance with specific risk controls identified.

A JSEA/SWMS must be developed for all dynamic work activities.

5.10 Permits

In addition to the development of a JSEA/SWMS and an isolation instruction to manage a work activity, specific permits may also be required to manage the

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operational impacts and other hazards associated with work activities involving isolations.

The work coordinator must assess the operational impacts and hazards associated with each work activity to ensure that appropriate permits are completed.

Specific triggers and requirements for the use of permits are defined in the WHS PASS Procedure (<u>PRO-01820</u>).

5.11 Disciplinary process

Unauthorised removal of isolation locks and/or isolation tags, blue personal locks and/or personal danger tags, out of service locks and/or tags or a failure to follow correct isolation procedures has the potential to cause serious injury or death and/or serious equipment damage. As such, conduct of this nature will be treated seriously and may result in dismissal of the employee for serious misconduct.

Individuals found to have contravened any requirements of this procedure may be subject to disciplinary action in accordance with Seqwater's Discipline Procedure (<u>PRO-00962</u>).

6. Verifying isolations

The process for verifying isolations (also referred to as test for dead / prove for dead) is a critical step in the isolation process. It must be performed for all types of isolations (i.e. simple, complex and tiered (including trunk main isolations)) and must consider all energy sources involved in an isolation (i.e. electrical, hydraulic, pneumatic, moving plant and equipment, etc.).

The verification process confirms that all required isolation steps have been performed in accordance with the isolation instruction or JSEA/SWMS and defines a process for testing that the isolations are effective and sources of stored energy have been dissipated.

The isolation verification process to be implemented must be recorded on the isolation instruction or JSEA/SWMS for the work activity. It must not create or introduce new hazards into the work activity.

Verification of isolations is achieved through the following processes:

- Visual inspection of the following:
 - plant or process controls (push buttons, switches, etc.) are engaged or activated
 - electrical switches or contactors to ensure that they are in the open position
 - valves are in the operating mode defined on the isolation instruction
 - suspended parts are lowered to a resting position or blocked to prevent movement
 - moving parts are restrained
 - flows have ceased from drain or scour valves
 - locks and tags are in place to secure the isolation points.
- Testing of the following:

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- electrical equipment has been de-energised and that all electrical energy has been dissipated (refer to section 6.1 for specific requirements for verifying electrical isolations)
- opening drain or scour valves to ensure fluids have been drained
- checking pressure gauges to ensure hydraulic or pneumatic energy has been removed.
- Attempting to start an item of plant.

6.1 Verifying electrical isolations (low voltage)

Specific requirements for verifying low voltage isolations are defined section 5 of the WHS Electrical Safety Procedure (PRO-00006).

6.2 Verifying electrical isolations (high voltage)

Specific requirements for verifying high voltage isolations are defined section 7 of the WHS Electrical Safety Procedure (<u>PRO-00006</u>).

7. Inch and test requirements

The inch and test process is used to temporarily remove isolations from an item of plant to allow workers to test the operation of the plant (e.g. to confirm phase rotation, checking pipework / fittings for leaks, etc.).

The steps associated with inch and test processes are detailed in Appendix E.

8. Break in work requirements

The break in work process must be used where a work activity cannot be completed in a single shift and the plant being worked on will remain isolated until the work activity can be completed.

In these situations, a process must be implemented to inform workers of the risks associated with the item of plant and to prevent the use or operation of the item of plant until the work activity has been completed.

The steps associated with the break in work process are detailed in Appendix F.

9. Out of service requirements

The out of service process must be used where an item of plant is found to be faulty or unsafe to use.

The out of service process is used to inform workers of the risks associated with a faulty item of plant and to prevent the use or operation of the item of plant until it has been repaired and made safe to operate.

Work must not be performed on an item of plant that is out of service until workers confirm that the plant is isolated and all isolation points are secured (refer to section 5 of this procedure for isolation requirements).

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The steps associated with taking an item of plant out of service are detailed in Appendix G.

10. Isolation equipment

Specifications for equipment used to perform isolations at Seqwater workplaces are defined in Appendix H of this procedure.

Isolation equipment is available from the following store locations:

- Northern store North Pine WTP
- Central store Westbank WTP
- Southern store Hinze Dam.

Workers will require a work order to be issued with isolation equipment from a Seqwater store.

Workers must ensure that all isolation equipment is accounted for and returned to its owner or storage location at the completion of a work activity.

10.1 Removal of isolation locks and tags

An isolation lock or tag must only be removed by:

- the worker who attached the isolation lock or tag; or
- if the worker who attached the isolation lock or tag is not available, the isolation lock or tag can only be removed by another worker in the following circumstances:
 - where a handover has been provided by the worker who attached the isolation lock detailing the reason for attaching the lock and the work required to safely de-isolate and return the plant to service; **and**
 - the worker who will be removing the isolation lock is an authorised isolator for the site and holds the appropriate qualifications and experience to remove the isolations; and
 - details of the handover has been documented on the JSEA/SWMS for the work activity.
- where a handover cannot be provided by the worker who attached the isolation lock or tag, the forced lock removal process must be used to manage the removal of the lock or tag.

10.2 Forced removal of locks and tags

The following process must be used where a worker has left a workplace without removing a lock and/or tag from an isolation point or lock board and the isolated plant needs to be returned to service:

- 1. All attempts must be made to contact the owner of the lock and/or tag.
- Where the owner of the lock and/or tag is not available to remove the lock and/or tag, the work coordinator must complete section 1 and 2 of the Forced Lock Removal Form (<u>FRM-00424</u>).

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- 3. The work coordinator must personally inspect the isolation including the area where the worker was working to determine that no workers are in danger, or potential danger, as a result of the work activity.
- 4. If the original isolation officer is unavailable, the work coordinator must appoint an alternative isolation officer to remove the isolations. The alternative isolation officer must have intimate knowledge of the isolated plant and hold the appropriate qualifications and experience to remove the isolations. Where required, the work coordinator may perform the role of the alternative isolation officer.
- The work coordinator must contact the relevant Level 3 Manager for the site where the plant is isolated to obtain approval to remove of the lock and/or tag. Approvals are recorded in section 3 of the Forced Lock Removal Form (<u>FRM-00424</u>).
- 6. If approval is given, the work coordinator directs the isolation officer to remove the lock and/or tag and reinstate the item of plant to service.
- 7. The forced lock removal event must be reported as an incident by the work coordinator by notifying Seqwater's incident hotline on (07) 3270 4040.
- The work coordinator must complete section 4 of the Forced Lock Removal Form (<u>FRM-00424</u>) to complete the process. Any removed locks, tags and/or documentation must be retained as evidence for further investigation.

10.3 Detached tags

Any worker who finds a detached tag must assume that the tag has been unintentionally detached from the isolation device or item of plant.

A worker who finds a detached tag must:

- if the location where the tag has detached from is clear:
 - attach a substitute tag to the isolation device or item of plant; and
 - contact the worker named on the tag or the line supervisor; or
- if the location where the tag has detached from is not clear:
 - contact the worker named on the tag or the line supervisor in order to identify where the tag has become detached from; or
 - if the details of the worker named on the tag or the line supervisor cannot be identified or contacted then the the event must be reported to Seqwater's incident hotline on (07) 3270 4040 and the site's duty operator.

11. Training requirements

All energy tag and lock out training will be provided in accordance with the requirements of the WHS Training, Competency & Behaviour Management Procedure (<u>PRO-01574</u>).

Training requirements specific to PASS, including isolation training requirements are detailed in Appendix I of this procedure.

12. Monitoring and audit

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The application of this procedure may be audited in accordance with the WHS Internal Audit Schedule and the Integrated Management System Internal Audit Procedure (<u>PRO-00002</u>).

13. Record keeping

All records are to be retained, archived and disposed of in accordance with the *Queensland State Archives General Retention and Disposal Schedule for Administrative Records*.

14. References

14.1 Legislation and other requirements

Description	Status	Location
Electrical Safety Act 2002 (Qld)	Active	www.legislation.qld.gov.au
Electrical Safety Regulation 2013 (Qld)	Active	www.legislation.qld.gov.au
Queensland State Archives General Retention and Disposal Schedule for Administrative Records	Active	www.archives.qld.gov.au/Reco rdkeeping/RetentionDisposal/P ages/GRDS.aspx
Work Health and Safety Act 2011 (Qld)	Active	www.legislation.qld.gov.au
<i>Work Health and Safety Regulation</i> 2011 (Qld)	Active	www.legislation.qld.gov.au
Electrical Safety Code of Practice 2013 - Managing electrical risks in the workplace (Qld).	Active	https://www.worksafe.qld.gov.a u/ data/assets/pdf file/0007/5 9677/es-code-of-practice-risk- management.pdf
AS4836 – Safe Work: Safe working on or near low-voltage electrical installations and equipment must be considered	Active	www.saiglobal.com/online

14.2 Supporting procedures

Description	Status	Location
PRO-00962 Discipline Procedure	Active	Q-Pulse
PRO-00002 Integrated Management System Internal Audit Procedure	Active	Q-Pulse
PRO-00808 WHS Contractor Management Procedure	Active	Q-Pulse
PRO-00006 WHS Electrical Safety Procedure	Active	Q-Pulse
PRO-00005 WHS General Construction Procedure	Active	Q-Pulse
PRO-00657 WHS Hazard Identification and Risk Management Procedure	Active	Q-Pulse

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Description	Status	Location
PRO-01820 WHS PASS Procedure	Active	Q-Pulse
PRO-01574 WHS Training, Competency & Behaviour Management Procedure	Active	Q-Pulse

14.3 Supporting documents, forms and templates

Description	Status	Location
Authorised Isolator Assessment Work Instruction (<u>PRO-02008</u>)	Active	Q-Pulse
Energised Work Permit (FRM-00415)	Active	Q-Pulse
Forced Lock Removal Form (<u>FRM-</u> 00424)	Active	Q-Pulse
JSEA/SWMS Template (TEM-00013)	Active	Q-Pulse
Isolation Instruction Template (<u>TEM-</u> 00077)	Active	Q-Pulse

15. Definitions

Term	Definitions
Access officer	The worker responsible for managing entry by other workers onto Seqwater workplaces.
Administration area	Any area that is used for administrative purposes only, consisting of offices, desks and meeting rooms.
Authorised isolator	A worker who has been assessed and authorised to manage isolation arrangements for isolation officers, develop and review isolation instructions for the sites at which they are authorised and for the types of isolations relevant to their qualifications.
	The Authorised Isolator Assessment Work Instruction (PRO- 02008) is used to assess and authorise workers to perform the role of an Authorised Isolator.
Break in work	Where a work activity cannot be completed in a single shift and the plant being worked on will remain isolated.
Contractor	Any person or firm engaged under contract by Seqwater to undertake work. A contractor is not an employee.
De-energised	Means separated from all sources of supply but not necessarily isolated, earthed, discharged or out of commission.
Double valve isolation	The use of two isolation valves, in series, on the same feed-in pipe line to isolate a potential source of engulfment. A penstock valve, gate valve or a baulk gate is considered to be a double valve isolation.
Dynamic work	The process of performing a work activity on an item of plant that is operating and has not been isolated from energy sources. Dynamic work exposes workers to energy sources and must be appropriately planned and performed in a controlled manner.

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Term	Definitions
	Dynamic work does not include work activities that expose workers to electrical energy.
Hazard	A situation that has the potential to harm a person and/or the environment and/or damage property.
High-risk work permit	A permit that is used to manage the hazards associated with high-risk work activities. High-risk work permits define specific risk controls that must be implemented.
High Voltage (HV)	Voltages in excess of 1000 volts AC or 1500 volts ripple-free DC.
Inch and test	The process of functional testing of equipment during commissioning. The inch and test process may require the partial or full de-isolation of plant. The steps to undertake inching and testing are recorded on the isolation instruction.
Isolation instruction	A document that defines the steps required to isolate and reinstate an energy source in order to allow a work activity to be undertaken safely.
Isolation officer	The worker who is responsible for planning and performing an isolation.
Job Safety & Environment Analysis (JSEA)	Job Safety & Environment Analysis is a method of identifying hazards in a job and developing ways to control the hazards to eliminate or minimise the risk to personnel, the environment and equipment.
Line supervisor	A line supervisor is a person with day-to-day supervisory responsibilities for workers within a functional area of the business. A line supervisor includes, but is not limited to, team leaders, coordinators and level 4 or 5 supervisors. A line supervisor is also considered a worker, but has additional responsibilities for the implementation of the WHS Management System as identified in the WHS Management System and/or position description.
Live electrical work	Work that exposes electrical workers to live electrical components.
	There are specific legislative and procedural requirements that must be met in order to perform live electrical work.
Low Voltage	An operating voltage that exceeds extra-low voltage and does not exceed 1000V AC or 1500V ripple free DC as defined in the <i>Electrical safety code of practice 2013 – Managing</i> <i>electrical risks in the workplace.</i>
Major Works Permit (MWP)	A process that allows Seqwater to control work activities that impact, or have the potential to impact Seqwater's ability to deliver its core services.
Manager	A person with the responsibilities for managing a functional area of the business including the workers within the relevant functional area. This includes, but is not limited to, Level 3 Managers, General Managers and Project Managers. A manager is also considered a worker, however managers may have additional responsibilities for implementation of the WHS Management System as well as any additional responsibilities as an officer of the business.
Operational area /	Any area of a Seqwater workplace that is not an administration

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Term	Definitions
operational site	area. Includes any area within five metres of a Seqwater water main.
Operational maintenance	Operational maintenance is the care and minor maintenance of plant using procedures that do not require detailed technical knowledge of the plant's or system's function and design. Operational maintenance consists of inspecting, cleaning, servicing, preserving, lubricating, and adjusting, as required
Permit Access Safety System (PASS)	PASS manages access to, and work activities performed at, Seqwater workplaces. PASS provides a structured and methodical approach to planning and performing work activities.
Principal contractor	The person conducting a business or undertaking appointed by Seqwater as the Principal Contractor for a construction project, and given the management and control of the workplace at which the construction project will be carried out and who discharges the duties of the Principal Contractor. A Principal Contractor is to be appointed by Seqwater for a construction project.
Plant	Includes any machinery, equipment, appliance, container, implement and tool, and includes any component or anything fitted or connected to any of those things. Plant includes items as diverse as lifts, cranes, computers, machinery, conveyors, forklifts, vehicles, vessels, power tools, playground equipment and cathodic protection systems.
	Plant that relies exclusively on manual power for its operation and is designed to be primarily supported by hand (e.g. a screw driver) is not covered by the <i>Work Health and Safety</i> <i>Regulation 2011</i> (Qld). The general duty of care under the <i>Work Health and Safety Act 2011</i> (Qld) applies to this type of plant.
	Certain kinds of plant, such as forklifts, cranes and some pressure equipment, require a licence from the WHS regulator to operate and some high-risk plant must also be registered with the WHS regulator.
Proven single point isolator	A proven single point isolator (e.g. a local isolator switch) is an isolation point that when operated, prevents the operation of an item of plant. Proven single point isolators must have been tested and proven to securely isolate the item of plant.
Rollback Plan	A plan that defines the process and steps required to reverse a work activity so that an asset or item of plant can be returned to service. The Rollback Plan will also define the time required to return the asset or item of plant to service.
	Rollback plans are developed using the Rollback Plan Template (TEM-00126).
Safe Work Method Statement (SWMS)	A SWMS sets out steps to enable supervisors, workers and any other persons at the workplace to understand the requirements that have been established to carry out the high- risk construction work in a safe and healthy manner. It sets out the work activities in a logical sequence and identifies hazards and describes control measures.
SCADA	Supervisory Control and Data Acquisition

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Term	Definitions
Site	A workplace at a defined location that is owned, managed or controlled by Seqwater e.g. a water treatment plant, administrative building or pump station.
Site access	 Site access controls entry to Seqwater workplaces and provides Seqwater with visibility of workers, contractors and visitors who are at a Seqwater workplace at any point in time. Site access is administered by an access officer who has responsibility for the coordination of work activities to: manage the impacts of work activities on Seqwater operations, and eliminate conflicts between multiple work parties.
Subordinate isolation	An isolation performed under the control of a master isolation. Subordinate isolations will generally be performed in accordance with the requirements of a complex isolation.
Trunk main isolation	An isolation performed to isolate a section of trunk main to allow a work activity to be performed.
Verification of isolation (Test for dead / prove for dead)	A process for verifying that an isolation has been effective in isolating all energy sources associated with an item of plant. The verification of isolation process must be documented for all types of isolation (i.e. electrical, mechanical, pneumatic, etc.)
Work activity	 An activity involving one or more of the following: inspection calibration maintenance repair construction demolition.
Work coordinator	An appropriately trained and competent worker has overall responsibility for the performance of a work activity.
Worker	 Worker means a person who carries out work in any capacity for Seqwater, including work as: an employee a contractor or subcontractor an employee of a contractor or subcontractor an employee of a labour hire company who has been assigned to work at Seqwater an outworker an apprentice or trainee a student gaining work experience a volunteer a worker of a prescribed class.
Workplace	A place where work is carried out by Seqwater and includes any place where a worker goes, or is likely to be, while at work. This includes a vehicle, vessel or other mobile structure.



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Appendix A – Isolation examples

Isolation Scenario	Simple Isolation	Complex Isolation	Tiered Isolation	Comments
Isolate the clear water main between clear water reservoir 1 and clear water reservoir 2 which will enable the safe installation of 1200 diameter butterfly valve and 'T piece'.	×	~	×	Isolation of multiple sources of water required. This isolation could require a tiered isolation if other works are being undertaken whilst this isolation is in place.
Isolate the BAC filter channel between the BAC filters, clear water reservoir 2 and the settled water channel for safe installation of the penstock valve, removal of the aluminum blanking plate and core 200mm hole through wall within the chlorine dosing chamber.	×	~	×	Isolation of multiple sources of water required. This isolation could require a tiered isolation if other works are being undertaken whilst this isolation is in place.
WTP shut down for 'T piece' cut-in reservoir 2 bypass.	×	~	×	Isolation of multiple sources of water required. This isolation could require a tiered isolation if other works are being undertaken whilst this isolation is in place.
Isolate and disconnect power and control circuits from the filter inlet control valve.	×	\checkmark	×	Isolation of multiple sources of energy required.
Isolation of a centrifuge to undertake weekly operational maintenance. The isolation can be achieved by switching a proven local isolator.	~	×	×	Isolation effected by a proven local isolator <u>and</u> the only operational maintenance is being performed. If the work required invasive maintenance (i.e. replacement of hydraulic lines, etc.), a complex isolation would be required to allow the work to be undertaken.
Isolate the raw water off take to allow diver inspection of the raw water main. While the main is isolated work will be undertaken on the raw water pumps and flash mixers at the WTP.	×	×	~	Isolation of multiple points required to isolate the raw water main and downstream assets. Multiple work activities being undertaken under the control of the raw water off take isolation.
Isolate a gas BBQ in a park to undertake operational maintenance. The gas supply can be isolated at a single proven isolation point.	~	×	×	Isolation effected by a proven local isolator <u>and</u> the only operational maintenance is being performed.

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Isolation Scenario	Simple Isolation	Complex Isolation	Tiered Isolation	Comments		
				Isolation can be performed by a trade qualified worker engaged by Seqwater Facilities.		
Isolate an air conditioner in an administration area at a	×	×	×	Isolation process must be documented on a JSEA/SWMS or isolation instruction.		
				Isolation instruction must be reviewed by an authorised isolator to confirm that the isolation will not impact on the operation of the site		
Isolate a chemical dosing pump to replace the diaphragm. The isolation will involve isolating a proven	~		~	Isolation of multiple points required to isolate the chemical dosing pump.		
single point isolator along with the chemical feed and discharge lines.	~	v	~	Work activity involves invasive maintenance and is not operational maintenance.		
Isolate and drain a trunk main to replace a barrel union joint.	×	\checkmark	×	Isolation of multiple points required to isolate and drain the trunk main.		

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Appendix B – Simple isolation process steps

The following process must be used for all simple isolations.

1. Plan the work activity

The worker assigned the work activity must undertake planning to ensure that:

- all risk control requirements to perform the work activity have been identified and will be followed
- all impacts of the isolation of the plant are understood (where the simple isolation will be performed on operational assets (e.g. pumps, centrifuges, etc.) the job plan and/or JSEA/SWMS must be developed or reviewed by an authorised isolator. This requirement has been included to manage the operational impacts of the simple isolation)
- all workers and plant impacted by the isolation are identified
- appropriate coordination with operational staff is undertaken to ensure operational impacts are managed
- all tools and equipment are available to complete the work activity (including all required isolation equipment).

2. Identify energy sources

The worker performing the work activity must personally identify:

- all sources of energy feeding or leaving the plant
- all sources of energy contained within the plant
- any part of the plant or contents of the plant that is likely to move.

Simple isolations will generally only have a single energy source feeding the plant being isolated, however all energy sources must be verified by the worker performing the work activity.

3. Communicate

Before isolating an item of plant, the worker performing the isolation must contact the access officer and any other workers at the work location who may be impacted by the work activity to confirm that the isolation can proceed as planned.

4. Isolate energy sources and dissipate stored energy

The worker performing the work activity must make an item of plant safe by:

- stopping the plant in a controlled manner
- isolating all sources of energy feeding or leaving the plant
- restraining the plant, materials and any other sources of energy associated with the plant that cannot be dissipated
- dissipating any source of energy contained within the plant.

The isolation of energy sources for simple isolations will generally involve unplugging power leads, disconnecting water hoses, turning off and removing the ignition keys of plant, switching and securing a local isolation switch, etc.

The isolation point/s or control point must be secured with a red isolation lock and isolation tag.

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Where required, alternative control measures may include the use of additional lockout devices such as a small plug lockout device, hasp, etc. may need to be used in conjunction with a red isolation lock and tag to secure the isolation point.

Where an isolation lock or a lockout device cannot be used to secure an isolation point, an isolation tag must be attached to the isolation point/s.

SCADA, control circuits or emergency stops must not be used as methods of isolation.

Where multiple workers are working under the control of a simple isolation, a lock board must be used to secure the key to the isolation lock for the duration of the work activity. All workers must affix their blue personal lock to the lock board whenever they are working under the control of the simple isolation.

5. Verify the effectiveness of the isolation

The worker performing the work activity must verify the effectiveness of the isolation before commencing work.

Verification of simple isolations is performed by visually checking the local disconnection of leads, hoses, by confirming the local isolator is in the off position or by checking the ignition of the item of plant.

Workers must also confirm that any energy stored in the plant is either:

- dissipated (i.e. air released from pressure vessels, water drained from discharge pipes); or
- restrained (i.e. chocks in place to prevent a vehicle moving).

The process used to verify an isolation, and the outcomes of the verification process must be recorded in the JSEA/SWMS for the work activity.

Note - re-testing should occur as necessary whilst electrical work is being undertaken if for example the worker carrying out the work temporarily leaves the immediate area, checks and tests must be carried out on their return to ensure that the equipment being worked on is still isolated to safeguard against inadvertent re-energisation.

6. Work on the plant

Following the verification of a simple isolation, the work activity may be performed in accordance with the JSEA/SWMS.

Where the work activity cannot be completed in a single shift, the worker performing the work activity must:

- notify the relevant access officer that the item of plant is out of service
- attach a yellow out of service lock and tag to the isolation point or control point for the item of plant to confirm that the plant is not safe to operate. Where a yellow out of service lock cannot be attached to an isolation point or control point, the minimum requirement is to attach a yellow out of service tag to the isolation point or control point for the isolated item of plant.

7. Communicate

Before reinstating an item of plant, the worker performing the work activity must contact the access officer and any other workers at the work location who will be impacted by the de-isolation to confirm that the item of plant can be reinstated as planned.

8. Reinstate plant

The worker performing the work activity must reinstate an item of plant by:

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- removing any restraints applied to the plant
- de-isolating any sources of energy to the plant
- confirming the plant is available to return to service
- starting the plant in a controlled manner (where required / permitted).

Where an item of plant is unable to be returned to service the out of service process detailed in Appendix F of this procedure must be used.

9. Return isolation equipment

Workers must ensure that all isolation equipment is accounted for and returned to its owner or storage location at the completion of the work activity.

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Appendix C – Complex isolation process steps

The following process must be used for all complex isolation:

1. Plan the isolation

The work coordinator must plan the work activity to ensure that:

- all risk control requirements to perform the work activity have been identified and will be followed
- all impacts of the isolation of the plant are understood
- all workers and plant impacted by the isolation are identified
- appropriate coordination with operational staff is undertaken to ensure operational impacts are managed
- all tools and equipment are available to complete the work activity (including all required isolation equipment)
- an authorised isolator/s has been identified to review and confirm isolation requirements.

2. Appoint an isolation officer

The work coordinator must appoint an isolation officer to identify the isolation points, develop the isolation instruction and perform the isolations. Refer to section 5.2 of this procedure for information regarding who can perform isolations at Sequater sites.

Note: in some situations, the work coordinator may also perform the role of an isolation officer for a complex isolation provided they satisfy the requirements of an isolation officer.

3. Identify energy sources

The isolation officer must personally identify:

- all sources of energy feeding or leaving the plant
- all sources of energy contained within the plant
- any part of the plant or contents of the plant that is likely to move.

Complex isolations will generally have multiple energy sources feeding the plant being isolated. Each energy source must be identified by the isolation officer, in collaboration with relevant authorised isolators.

4. Develop isolation instruction

The isolation officer must develop an isolation instruction that defines each step in the isolation process. The isolation steps must be documented on the Isolation Instruction Template (<u>TEM-00077</u>).

Where the complex isolation will be performed on operational assets, the isolation instruction must be developed or reviewed by an authorised isolator. This requirement has been included to manage the operational impacts of the isolation.

Isolation instructions for complex isolations must clearly define:

- the points to be isolated
- the steps in the isolation process
- the method for dissipating stored energy

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- the method of verifying the isolation (test for dead / prove for dead process) refer to section 6 of this procedure for requirements
- communication requirements and hold points in the process
- the rollback process
- the process for reinstating the plant.

5. Communicate

Before commencing a complex isolation, the isolation officer must contact the work coordinator, the access officer and any other workers at the work location who may be impacted by the work activity to confirm that the isolation can proceed as planned, to ensure that the item of plant can be stopped without creating unacceptable operational disruptions and to advise of any potential danger to the health and safety of any workers or other persons.

6. Isolate energy sources and dissipate stored energy

The isolation officer must isolate the item of plant by implementing the isolation steps documented in the isolation instruction, including:

- stopping the plant in a controlled manner
- isolating all sources of energy feeding or leaving the plant
- dissipating all sources of energy contained within the plant
- restraining the plant, materials and any other sources of energy associated with the plant that cannot be dissipated.

SCADA, control circuits or emergency stops must not be used as methods of isolation.

Consideration shall be given to the possibility of circuit wiring of plant or conductors becoming energised due to any operation of automatic control devices, e.g. thermostats, switches and other interface devices.

Where an issue is encountered when performing an isolation (i.e. unexpected impact from an isolation step, isolation step is not effective, etc.), the isolation must be reversed and the plant reinstated.

7. Locking and tagging isolation points

The isolation officer must affix a red isolation lock and an isolation tag to secure all isolation points in accordance with the requirements of the isolation instruction.

Devices not capable of being locked should, as far as reasonably practicable, be secured with a shroud, valve cover, chain, pin or other suitable means, or by the removal of the handle or operating mechanism. As a minimum, an isolation tag must be affixed to any isolation point not able to be secured with a red isolation lock.

8. Verify the effectiveness of the isolation (test and prove for dead)

The isolation officer must personally verify the effectiveness of the isolation before any work commences on the isolated plant.

Verification of isolations is performed by visually checking the isolation points and/or drainage points and where required, by attempting to start the item of plant (refer to section 6 of this procedure for isolation verification requirements).

The verification process and the outcomes of the process must be documented in the isolation instruction for the work activity.

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The isolation officer must also confirm that any energy stored in the plant is either:

- dissipated (i.e. air released from pressure vessels, water drained from discharge pipes, etc.); or
- restrained (i.e. chocking wheels of mobile plant, securing counterweights, etc.).

Risk controls must be identified, documented and implemented where the release of stored energy will impact on workers, the public or the environment (e.g. release of water to the environment, release of compressed air that produces noise hazards, etc.).

All workers participating in a work activity on an isolated item of plant must personally verify, or request the isolation officer to personally demonstrate, that all energy sources have been effectively isolated, dissipated or restrained. Once a worker has verified that the isolation is effective, they sign on to the isolation instruction.

Note - re-testing should occur as necessary whilst electrical work is being undertaken if for example the worker carrying out the work temporarily leaves the immediate area, checks and tests must be carried out on their return to ensure that the equipment being worked on is still isolated to safeguard against inadvertent re-energisation.

9. Lock board requirements

Once the isolation has been verified, the isolation officer places all of the keys to the red isolation locks used in the isolation into a lock board and informs the work coordinator that the item of plant is isolated.

The work coordinator then affixes their blue personal lock and personal danger tag onto the lock board to identify that they are responsible for the work activity being performed under the control of the complex isolation.

Each worker participating in the work activity must then affix their blue personal lock and personal danger tag to the lock board.

10. Work on the plant

After all workers participating in the work activity have locked onto the lock board, the work activity may be performed in accordance with the JSEA/SWMS.

If it is possible for stored energy to re-accumulate over the duration of the work activity, the work coordinator must implement appropriate measures to ensure the work activity can be completed safely (e.g. earthing electrical conductors, leaving drain valves open, etc. and verifying the isolation (testing for dead) as appropriate).

Red isolation locks must never be removed from an isolation point until the work activity associated with that isolation is complete.

Workers must remove their blue personal lock and personal danger tag from the lock board and sign off of the isolation instruction whenever they are not actively working on isolated plant.

Where a work activity cannot be completed in a single shift and the plant being worked on will remain isolated, the work coordinator must apply the break in work process detailed in Appendix E of this procedure.

11. Removal of locks from lock board

At the completion of the work activity, each worker participating in the work activity must:

- remove all tools and equipment from the work area
- replace any guards or other protection devices
- remove their blue personal lock and personal danger tag from the lock board.

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The work coordinator must remove their blue personal lock and personal danger tag from the lock board once they have confirmed that the work activity is complete, all tools and equipment have been removed from the work area and all workers have removed their blue personal locks and personal danger tags from the lock board.

Once all workers have removed their blue personal locks and personal danger tags from the lock board, and signed off of the isolation instruction, the isolation officer may retrieve the keys to the red isolation locks.

All tags used as part of the isolation must be destroyed and disposed of appropriately after the work activity is complete.

12. Communicate

Before reinstating an item of plant, the isolation officer must contact the work coordinator, the access officer and any other workers at the work location who will be impacted by the de-isolation to confirm that the item of plant can be reinstated as planned.

If the item of plant is not being reinstated by the relevant plant operator (i.e. water treatment plant or dam operator), the isolation officer must liaise with the access officer to ensure the item of plant can be returned to service without creating unacceptable operational disruptions.

13. Removal of locks and tags from isolation points

The isolation officer must confirm that all workers who participated in the work activity have completed their work and are clear of the plant, all tools and equipment have been removed and the plant is safe to return to service.

The isolation officer then removes all of the red isolation locks and tags from the isolation points in accordance with the requirements of the isolation instruction.

All isolation tags used as part of the isolation must be destroyed and disposed of appropriately after the work activity is complete.

14. Reinstate plant

Plant may be reinstated to either:

- test the operation of the plant (refer to Appendix D for inch and test requirements)
- return the plant to service.

The isolation officer must reinstate an item of plant in accordance with the requirements of the isolation instruction, including:

- carrying out appropriate testing on any new, altered or repaired plan, for example tests for insulation resistance, earth continuity, polarity, correct connection and function testing
- taking precautions to ensure that other plant is not inadvertently energised
- confirming that the item of plant is safe to return to service
- checking to ensure all workers, tools, equipment and waste have been removed from the work area
- checking to ensure that all guards have been replaced and the plant is safe for use
- re-establishing any sources of energy to the plant
- removing any restraints applied to the plant
- confirming that the plant is available for normal operations

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- confirm any SCADA alarms that have been disabled to perform the isolation are reinstated
- starting the plant in a controlled manner (if required / permitted).

Where an item of plant is unable to be returned to service the out of service process detailed in Appendix F of this procedure must be used.

15. Return isolation equipment

Workers must ensure that all isolation equipment is accounted for and returned to its owner or storage location at the completion of the work activity.

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Appendix D – Tiered isolation process steps

The following process must be used for all tiered isolations.

1. Plan the isolations

There are significant planning and coordination requirements associated with a tiered isolation.

The work coordinator in control of the master isolation must have intimate knowledge of the plant being isolated and have the skills and competencies to manage multiple work teams.

The work coordinator in control of the master isolation must ensure that all work activities that are to be performed under the control of the master isolation are appropriately planned so that they can be performed within the constraints of the master isolation.

All subordinate isolations performed under the control of a tiered isolation must be planned and performed in accordance with the requirements of the complex isolation processes detailed in Appendix B of this procedure.

2. Appoint a master isolation officer

The work coordinator in control of the master isolation must appoint a master isolation officer to:

- develop the master isolation instruction
- perform the master isolation
- coordinate isolation activities with isolation officers performing subordinate isolations under the control of the master isolation.

The master isolation officer must be an authorised isolator for the site where the isolation is being performed, be competent to coordinate the isolation and have the skills and competencies to manage multiple work teams.

3. Identify energy sources

The master isolation officer must personally identify all sources of energy feeding or leaving the master isolation points.

The master isolation officer must liaise with all isolation officers responsible for subordinate isolations to confirm the delineation between the master isolation and the subordinate isolations (i.e. confirm who is isolating what and when).

4. Develop master isolation instruction

The master isolation officer must develop a master isolation instruction that defines each step in the isolation process. This must be documented on the Isolation Instruction Template (<u>TEM-00077</u>).

Master isolation instructions must clearly define:

- the points to be isolated
- the steps in the master isolation process
- the method for dissipating stored energy
- communication requirements and hold points in the process
- the process for managing the subordinate isolations performed under the control of the master isolation

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- the process for reversing isolations when unexpected effects are observed as a result of an isolation
- the method of verifying the isolation (test for dead / prove for dead process) refer to section 6 of this procedure for requirements
- the process for reinstating the plant.

5. Communicate

Communication is critical for the successful implementation of a tiered isolation process.

A pre-work meeting must be held with the relevant access officer/s, all work coordinators and all isolation officers participating in the tiered isolation to confirm the communications methods and hold points that will be used. The pre-work meeting must also define the post-work requirements and responsibilities (e.g. requirements to stay on site to check for leaks, to confirm that plant is serviceable, etc.).

Before commencing a tiered isolation, the master isolation officer must contact all isolation officers responsible for the subordinate isolations to confirm that the work activity can proceed as planned.

The master isolation officer must also liaise with the relevant access officer/s to ensure that the work activity can proceed as planned.

6. Isolate energy sources

The master isolation officer must perform all master isolations in accordance with the requirements of the master isolation instruction.

SCADA, control circuits or emergency stops must not be used as methods of isolation.

Consideration shall be given to the possibility of circuit wiring of plant or conductors becoming energised due to any operation of automatic control devices, e.g. thermostats, switches and other interface devices.

Where an issue is encountered when performing an isolation (i.e. unexpected impact from an isolation, isolation is not effective, etc.) the isolation must be reversed, the plant reinstated. Issues encountered when performing subordinate isolations must be immediately reported to the master isolation officer.

7. Locking and tagging master isolation points

The master isolation officer must place a red isolation lock and an isolation tag on all master isolation points in accordance with the requirements of the master isolation instruction.

Devices that are not capable of being locked should, as far as reasonably practicable, be secured with a shroud, valve cover, chain, pin or other suitable means, or by the removal of the handle or operating mechanism. As a minimum, an isolation tag must be affixed to any isolation point not able to be secured with a red isolation lock.

8. Verify the effectiveness of the master isolation (test and prove for dead)

The master isolation officer must personally verify the effectiveness of the master isolation before any subordinate isolations are performed, and before any work activity associated with any subordinate isolations commence.

Verification of master isolations is performed by visually checking the isolation points and where required, by attempting to start the item of plant.

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The master isolation officer must also confirm that any energy stored in the plant is either:

- dissipated (i.e. air released from pressure vessels, water drained from discharge pipes, etc.); or
- restrained (i.e. securing counterweights, etc.).

Risk controls must be implemented where the release of stored energy will impact on workers, the public or the environment (e.g. release of water to the environment, release of compressed air that produces a noise hazard, etc.).

All subordinate isolation officers must personally verify, or request the master isolation officer to personally demonstrate that all energy sources associated with the master isolation have been effectively isolated, dissipated or restrained. Once a subordinate isolation officer has verified that the isolation is effective, they sign on to the master isolation instruction.

Note - re-testing should occur as necessary whilst electrical work is being undertaken if for example the worker carrying out the work temporarily leaves the immediate area, checks and tests must be carried out on their return to ensure that the equipment being worked on is still isolated to safeguard against inadvertent re-energisation.

9. Master isolation lockbox requirements

Once the master isolation has been verified, the master isolation officer places all of the keys to the red isolation locks used in the master isolation into a master isolation lock board.

The work coordinator in control of the master isolation then affixes their blue personal lock and personal danger tag onto the lock board to identify that they are responsible for the work activity being performed under the control of the complex isolation.

The work coordinator in control of the master isolation must then notify all subordinate isolation officers to confirm that the master isolation is complete and that the subordinate isolations may proceed.

10. Lock on to master isolation lock board

Before commencing subordinate isolations, the relevant subordinate isolation officer places a red isolation lock and isolation tag onto the master isolation lock board.

The key to the red isolation lock attached to the master isolation lock board is then placed into the relevant subordinate isolation lock board.

Placing a red isolation lock onto the master isolation lock board prevents the de-isolation of the master isolation until the associated subordinate isolation is de-isolated.

11. Perform subordinate isolations

Subordinate isolations are performed in accordance with the complex isolation processes defined in Appendix B of this procedure.

12. Work on the plant

Once the work coordinator in control of the subordinate isolation attaches their blue personal lock and personal danger tag onto their subordinate isolation lock board, the work activity associated with the subordinate isolation can be performed.

If it is possible for stored energy to re-accumulate over the duration of the work activity, the work coordinator must implement appropriate measures to ensure the work activity

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can be completed safely (e.g. earthing electrical conductors, leaving drain valves open, etc. and verifying the isolation (testing for dead) as appropriate).

Workers must remove their blue personal lock and personal danger tag from the lock board and sign off the isolation instruction, whenever they are not actively working on isolated plant.

Where a work activity cannot be completed in a single shift and the plant being worked on will remain isolated, the worker performing the work activity must apply the break in work process defined in Appendix F of this procedure.

13. Removal of locks from master isolation lock board

At the completion of a subordinate work activity, the relevant isolation officer must:

- confirm the work activity associated with the subordinate isolation is complete and all workers, tools and equipment have been removed from the work area
- confirm all blue personal locks and personal danger tags have been removed from the subordinate isolation lock board
- remove all red isolation locks and tags from subordinate isolation points
- notify the master isolation officer that the work activity related to the subordinate isolation is complete
- remove the red isolation lock and isolation tag from the master isolation lock board.

Once all subordinate isolation officers have removed their red isolation locks and isolation tags from the master isolation lock board and signed off the master isolation instruction, the work coordinator in control of the master isolation may remove their blue personal lock and personal danger tag from the master lock board and retrieve the keys to the master isolation locks.

14. Communicate

Before reinstating the master isolation, the master isolation officer must contact all subordinate isolation officers to confirm:

- all workers, tools and equipment have been removed from all work areas
- all items of plant are safe to be reinstated as planned
- all items of plant are available to be returned to service.

The master isolation officer must also liaise with the relevant access officer and work coordinator to ensure the reinstatement of plant can proceed as planned.

15. Removal of locks and tags from master isolation points

The master isolation officer removes all red isolation locks and isolation tags from all master isolation points in accordance with the requirements of the master isolation instruction.

Red isolation locks must never be removed from the master lock board or from a master isolation point until all work activities associated with the master isolation and all subordinate isolations are complete.

16. Reinstate plant

Plant may be reinstated to either:

- test the operation of the plant (refer to Appendix D for inch and test requirements)
- return the plant to service.

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The master isolation officer must reinstate an item of plant in accordance with the requirements of the master isolation instruction, including:

- carrying out appropriate testing on any new, altered or repaired plan, for example tests for insulation resistance, earth continuity, polarity, correct connection and function testing
- taking precautions to ensure that other plant is not inadvertently energised
- confirming that the item of plant is safe to return to service
- checking to ensure all workers, tools, equipment and waste have been removed from the work area
- checking to ensure that the plant is safe for use
- re-establishing the energy sources associated with the master isolation
- confirming that the plant is available for normal operations
- confirm any SCADA alarms that have been disabled to perform the isolation are reinstated
- starting the plant in a controlled manner (if required / permitted).

Where an item of plant is unable to be returned to service the Out of Service process detailed in Appendix F of this procedure must be used.

17. Post work requirements

All work coordinators and isolation officers who performed subordinate isolations must remain at the site of their respective isolations to confirm that all plant is operationally available and that there are no faults, leaks etc.

Once reinstated, each work coordinator must contact the master isolation officer to confirm that their plant is operationally available and that there are no faults, leaks etc.

Provided that there are no ongoing issues associated with the master isolation, the work coordinators and isolation officers who performed the subordinate isolations may leave their respective work sites.

Any issues encountered with reinstated plant must be immediately reported to the master isolation officer. Depending on the type of issue encountered, the affected plant may be either:

- re-isolated to rectify the issue; or
- placed out of service until the issue can be rectified; or
- where safe and appropriate to do so, left operating and a works request generated to rectify the issue at a later date.

18. Return isolation equipment

Workers must ensure that all isolation equipment is accounted for and returned to its owner or storage location at the completion of the work activity.

19. Lessons learned debrief

The Work Coordinator in control of the master isolation should hold a lessons learned debrief with all subordinate work coordinators and isolation officers to assess how the work activity progressed and to identify areas where improvements could be made.

The lessons learned debrief must be minuted and all identified improvements documented and distributed as appropriate within Seqwater.

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Appendix E – Inch and test process

The following process is used to temporarily remove isolations from an item of plant to allow workers to test the operation of the plant:

1. Isolation instruction

The isolation officer must complete section 5 of the Isolation Instruction (FRM-00077) to describe the steps that will be performed during the inch and test process.

2. Communicate

Before commencing an inch and test process, the work coordinator must liaise with the relevant access officer to confirm that the inch and test process can proceed as planned.

3. Workers remove personal locks and tags

All workers (including the work coordinator) must remove their blue personal locks and personal danger tags from the lock board and sign off the isolation instruction.

4. Perform inch and test

The isolation officer removes the keys to the isolation locks and de-isolates the plant in accordance with the requirements of section 4 of the isolation instruction.

Once the plant has been de-isolated, the work coordinator performs the inch and test process in accordance with the requirements of section 5 of the isolation instruction.

Once the inch and test process is complete, the isolation officer re-instates all isolations in accordance with the requirements of section 2 of the isolation instruction and places all keys to the isolation locks into the lock board.

5. Complete inch and test (continue work activity)

Once the inch and test process is complete, all isolations have been reinstated and isolation locks have been affixed to isolation points, all workers (including the work coordinator) must re-attach their blue personal locks and personal danger tags to the lock board.

Once workers have attached their blue personal locks and personal danger tags to the lock board and sign on to the isolation instruction, they may resume the work activity in accordance with the JSEA/SWMS.

6. Complete inch and test (reinstate plant)

If the inch and test process was successful and the plant is ready to be returned to service, the isolation officer will remove any remaining isolations and return the plant to service in accordance with the isolation instruction.



Appendix F – Break in work process steps

The following process must be used where a work activity cannot be completed in a single shift and the plant being worked on will remain isolated until the work activity can be completed:

1. Leave isolations in place

All isolation points must remain isolated and all red isolation locks and isolation tags must remain in place.

2. Workers remove personal locks and tags

All workers (with the exception of the work coordinator) must remove their blue personal locks and personal danger tags from the lock board and sign off the isolation instruction.

3. Attach out of service lock and tag

Once the work coordinator has confirmed all workers have left the work area and have removed their blue personal locks and personal danger tags from the lock board and signed off the isolation instruction, the work coordinator attaches a yellow out of service lock and yellow out of service tag to the lock board.

The work coordinator's details, the reason for attaching the out of service lock and who holds the out of service lock key must be recorded on the yellow out of service tag.

The work coordinator then removes their blue personal lock and personal danger tag from the lock board.

Where possible the lock board must be placed in a secure location at the site of the isolation for the duration of the break in work. Where this is not practical (i.e. there is no secure location or the lock board will be exposed to rain, etc.) the work coordinator must transfer the lock board to the relevant operations control room or maintenance depot until the work resumes.

4. Out of service lock key

The work coordinator must attach an information tag to the out of service key to record their contact details and to identify the plant that is out of service (see Appendix G for further information on the out of service key and information tag).

The work coordinator must transfer the out of service key to the relevant operations control room or maintenance depot until the work resumes.

Key cabinets for securing out of service keys should be installed at all operational control rooms and maintenance depots. Workers must be made aware of the location of the out of service key cabinets.

Out of service key cabinets must be accessible to all workers at all times.

5. Work activity documentation

Documentation associated with the work activity (i.e. JSEA/SWMS, Isolation Instruction, High-Risk Work Permits) must remain at the location of the work (preferably using a lock board), provided they can be secured and protected from the environment.

Where documentation cannot be secured and protected from the environment, the work coordinator must transfer the documentation to the relevant operations control room or maintenance depot until the work resumes.

All documentation must be reviewed prior to recommencing the work activity.

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6. Removal of out of service lock

An out of service lock may only be removed by an authorised isolator for the site where the out of service plant is located.

7. Assessing for change

Before resuming a work activity after a break in work, the work coordinator must inspect the work site to confirm if any conditions have changed during the break in work that may impact on the completion of work (e.g. rainfall, changed operating conditions, other work activities occurring in the vicinity, etc.).

Where required, additional risk controls must be implemented to ensure that the work activity can be safely completed. The JSEA/SWMS for the work activity must be reviewed and updated to reflect any additional risk controls implemented.

8. Resume work activity

After the work coordinator has confirmed that the work activity can resume, the work coordinator affixes their blue personal lock and personal danger tag to the lock board and signs on to the isolation instruction. The work coordinator may then remove the yellow out of service lock from the lock board.

Once the work coordinator has affixed their blue personal lock and personal danger tag to the lock board, all other workers involved in the work activity must then affix their blue personal locks and personal danger tags to the lock board and sign on to the isolation instruction.

Once workers have affixed their blue personal locks and personal danger tags to the lock board and sign on to the isolation instruction, the work activity may resume in accordance with the JSEA/SWMS.



Appendix G – Out of service process steps

The following process must be used for taking a faulty or unsafe item of plant out of service.

1. Make the item of plant safe

All items of plant must be made safe before they are taken out of service. Plant may be made safe by performing one or more of the following actions:

- communicate with plant operator / asset owner
- stop the operation of the plant
- isolate all sources of energy feeding or leaving the plant
- dissipate all energy from within the plant
- terminating any exposed conductors
- physically securing any exposed conductors or surrounding metal work
- informing affected persons at the workplace the work is not complete and advising of potential hazards
- taking any necessary precautions to ensure that electrical equipment cannot become inadvertently re-energised
- ensuring that the status of switchboards and plant are clearly and correctly labelled
- barricade the plant to prevent entry (where required)
- providing adequate information to workers who will be working on out of service plant to allow them to safely perform the work.

2. Locking and tagging of out of service plant

After the item of plant is made safe, an out of service tag must be affixed to the controls of the plant to identify that the plant is unsafe to operate.

The out of service plant must also be isolated to prevent its operation and to allow repairs to be performed. The following processes may be used to isolate out of service plant:

- Where a single red isolation lock and isolation tag has been used to isolate an item of plant which is now is out of service, the red isolation lock and isolation tag must be removed from the isolation point and replaced with an out of service lock and an out of service tag.
- Where multiple red isolation locks have been used to isolate an item of plant that is out of service, the keys to all red isolation locks must be placed into a lock board and a yellow out of service lock and an out of service tag must be placed on the lock board.

Details of who holds the out of service lock key and the reason the plant has been placed out of service must be recorded on the yellow out of service tag.

3. Out of service lock key

The worker who placed the item of plant out of service, must affix an information tag to the out of service key to record their contact details and to identify the plant that is out of service and the reason that the plant is out of service.

The worker must transfer the out of service key to the relevant operations control room or maintenance depot until the work resumes.

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Key cabinets for securing out of service keys should be installed at all operational control rooms and maintenance depots. Workers must be made aware of the location of the out of service key cabinets.

Out of service key cabinets must be accessible to all workers at all times.

4. Removal of out of service lock

An out of service lock or tag must only be removed by an authorised isolator for the site where the out of service plant is located.

5. Working on out of service plant

The process for commencing work on plant that has been placed out of service will vary depending on the type of isolation used to make the plant safe.

NOTE: Before commencing work on an item of plant that is out of service, the work coordinator must:

- develop a JSEA/SWMS for the work activity, and
- prove that the item of plant is isolated (i.e. a test for dead / prove for dead process must be applied before the work activity commences).

Single isolation point used to make the out of service plant safe

Once a work coordinator has confirmed that the work activity on the out of service plant can commence, the work coordinator removes the out of service lock and tag from the isolation point and affixes a red isolation lock and tag to the isolation point. The work coordinator secures the key to the isolation point for the duration of the work activity.

Multiple isolation points used to make the out of service plant safe

Once a work coordinator has confirmed that the work activity on the out of service plant can commence, the work coordinator affixes their blue personal lock and personal danger tag to the lock board. The work coordinator may then remove the yellow out of service lock from the lock board.

Once the work coordinator has affixed their blue personal lock and personal danger tag to the lock board and signs on to the isolation instruction, all other workers involved in the work activity must then affix their blue personal locks and personal danger tags to the lock board and sign on to the isolation instruction.

Once workers have affixed their blue personal locks and personal danger tags to the lock board the work activity may resume in accordance with the JSEA/SWMS.

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Appendix H – Specifications for isolation equipment

Isolation locks and tags

Isolation locks

- Isolation locks are used to physically lock a device that is isolating an energy source.
- Isolation locks must only be applied and removed by authorised isolators and have completed training as detailed in section 11 of this procedure.
- Isolation locks are red in colour and the locks are keyed to differ.
- The stock code to re-order isolation locks is 001744.

Isolation tags

- Isolation tags are used to identify who has performed the isolation. A tag does not perform the isolation function.
- Isolation tags warn persons that:
 - the plan is isolated or out of service
 - the energy source is isolated or out of service
 - reconnecting the energy source may endanger the life of the worker(s) working on the plant
- Where possible, a tag should be attached to all isolation locks at all points of isolation used to isolate the plant from its energy sources.
- The isolation tag should:
 - indicate any warning about specific hazards relating to the isolation (eg multiple points of supply)
 - be dated and signed by the worker involved in carrying out the work, or where appropriate the work coordinator)
 - be attached to a prominent position on each isolation point or device.
- Isolation tags must only be applied and removed by authorised isolators and have completed training as detailed section 11 of this procedure.
- Isolation tags are red, and black in colour and are single use only.
- All isolation tags must be destroyed and disposed of appropriately after the work activity is complete.
- The stock code to re-order isolation tags is 100008.



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Blue personal locks and personal danger tags

- Blue personal locks are attached to a lock box or lock board to prevent the lock box or lock board being opened whilst a worker is performing a work activity under the control of the isolation.
- A personal danger tag must be attached to all personal locks to identify who the lock belongs to.
- Only one blue personal lock is to be issued to a worker at any point in time.
- Blue personal locks must only be applied and removed by workers with appropriate qualifications and competency and have completed training as detailed in section 11 of this procedure.
- Personal locks are blue in colour with the locks keyed to differ.
- The stock code to re-order personal locks is 002926.
- The stock code to re-order personal danger tags is 001748.





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Information tag

- Information tags provide information or a message to others regarding:
 - who is responsible for the out of service key that the information tag is attached to
 - the status of plant (e.g. blower motor control device may have an information tag attached advising that an operator shall be consulted before turning the equipment off).
- An information tag must not be used as a personal danger tag, to identify an item of plant as being out of service or to identify a hazard associated with the item of plant.
- Information tags should be removed by the person who placed them or their line supervisor once the need for the information is no longer required.
- Information tags are blue and white in colour.
- All information tags must be destroyed and disposed of appropriately after they have been removed.
- The stock code to re-order information tags is 001746.

•	•
INFORMATION TAG THIS TAG MUST <u>NOT</u> UNDER ANY CIRCUMSTANCE BE USED AS A SUBSTITUTE FOR A PERSONAL DANGER TAG OR A CAUTION OUT OF SERVICE TAG	INFORMATION TAG
THIS TAG WAS PLACED BY:	MESSAGE:
NAME: SIGNATURE: DATE://	
SEE OTHER SIDE	SEE OTHER SIDE

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Out of service locks and tags

Out of service locks

- Out of service locks are used to prevent the operation of out of service, faulty or unsafe plant.
- Out of service locks must only be applied and removed by workers with appropriate qualifications and competency and have completed training as detailed in section 11 of this procedure.
- Out of service locks are yellow in colour and keyed to differ.
- The stock code to re-order out of service locks is 002924.

Out of service tags

- Out of service tags are applied to out of service locks to identify who placed the out of service lock on the plant and to identify the reason that the plant is out of service.
- Clearly state the nature of the defect or reason why the plant is unsafe.
- Should be attached on a prominent position on each isolation point.
- Out of service tags are yellow and black.
- All out of service tags must be destroyed and disposed of appropriately after the work activity is complete.
- The stock code to re-order out of service tags is 001747.



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Lock boards / lock boxes

- Lock boards and lock boxes are used to secure keys for isolation locks used during complex and tiered isolations.
- Lock boards are also used for the retention and display of documents associated with the work activity being performed (e.g. major works permit, high-risk work permits, isolation instructions, JSEA/SWMS, work order, etc.).
- Lock boards are the preferred method of securing keys for isolation locks during isolations performed at Seqwater workplaces.
- The stock code to re-order a permit board is 002968.





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Other isolation equipment

Valve shrouds

- Valve shrouds are used to prevent the operation of a valve that is being used as an isolation point.
- Valve shrouds are red in colour and allow a worker to attach an isolation lock to secure the shroud to the valve.



Valve caps

- Valve caps are used to identify the state of a valve that is unable to be locked in place by any other locking device.
- The following caps are used at Seqwater workplaces:
 - Red cap indicates the valve is normally shut
 - Green cap indicates the valve is normally open
 - Yellow cap with red tag indicates the valve is temporarily shut
 - Yellow cap with green tag indicates the valve is temporarily open





Cable devices

 Cable devices are used to secure valves and other devices that cannot be secured using locks or shrouds.



Small plug lockout device

• A small plug lockout device is used to secure a small plug that has been removed from a GPO or similar to allow work to be performed on an item of plant.



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Miniature circuit breaker lockout device

- A miniature circuit breaker lockout device is used to secure circuit breakers to allow work to be performed on an item of plant. Below are a number of different types of lockout devices.
- Miniature circuit breaker lockout device (standard toggles)



• Miniature circuit breaker lockout device (pins inward)



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Appendix I – Isolation Training Requirements

Training Module	Training Method	Session Time	All Seqwater Employees	Contractors	Work Team Member	Work Coordinator	Project Manager	Isolation Officer	Access Officer	Approver
PASS Overview Training (includes Site Access Training)	Online	30mins			The PASS Overview Training module must be successfully completed before any other training modules can be undertaken.					efore any
Major Works Permit Training	Online	30mins								
Introduction to isolations	Online	30mins								
Planning and documenting isolations	Online	30mins								
Applying isolation processes	Online	60mins								
Access Officer Training (includes IT Solution Administration)	Face to face	3.5 hours								
 Notes: Contractors must undertake training relevant to the role they are performing Once a worker has completed all three isolation modules they will need to be assessed as competent by their line supervisor or other appropriate person. This may be through the development of an isolation instruction, or demonstrating that they are able to perform an isolation. Compulsory however it may be required due to the requirements of the work activity 										

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