Procedure

Working On, In or Near Water

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Contents

1. Purpose

The purpose of this Procedure is to define Seqwater's expectations around safely working on, in or near water.

2. Scope

This Procedure applies to This procedure applies to all employees, contractors and consultants working for or on behalf of Seqwater, unless otherwise stated.

3. Critical Controls

Critical Controls for Working On, In or Near Water		
	Critical Controls	**Objective**
1	Edge protection is in place on built structures where required e.g. handrails and/or guardrails, fixed grid mesh	To prevent a fall to water from a built structure
2	Life Jackets or Fall restraint / arrest worn by persons closer than 2m to to an unprotected edge where there is a risk of drowning	To prevent or mitigate a fall to water
3	Fit for purpose vessels / kayaks	To ensure selection and procurement of fit for purpose and compliant vessels including kayaks
4	Vessels are operated to conditions and manufacturers specifications	To prevent unsafe use of vessels
5	No persons or vessels in an exclusion zone around a spillway when dam is spilling	To prevent a person or vessel being swept over a spillway
6	Mobile plant in proximity to water is operated to conditions and manufacturers specifications	To prevent mobile plant interaction with water
7	No vehicles to drive on a submerged road (unless authorised)	To prevent vehicles being inundated and swept away by moving water
8	Contractors have a clean, reliable and adequate air supply for the duration of the diving activity	To prevent divers being exposed to an unsafe breathing atmosphere
9	Contractor diving equipment is serviced, maintained and calibrated to manufacturers specifications	To prevent diving equipment failure
10	Depth and duration limits of diving activities carried in accordance with AS/NZS 2299.1	To prevent exposure to unsafe depth and pressures
11	Seqwater personnel are not permitted to perform diving work	To ensure diving work at Seqwater is only performed by specialist contractors
12	Rescue the worker from body of water / liquid	To minimise human harm caused by unplanned partial or full submersion of a worker in water
13	Emergency Services assistance	To minimise human harm caused by unplanned partial or full submersion of a worker in water

4. Procedure

The risks associated with working on, in or near a water body should be eliminated wherever reasonably practicable, otherwise the risks of undertaking the activity must be minimised so far as is reasonably practicable.

Managing the following risks associated with working on, in or near water is the primary focus of this procedure:

- Falling into the water and drowning.
- Being swept away by fast moving water and being injured or drowning.
- Falling into water with electrical equipment and suffering an electric shock.
- Being trapped under water by equipment or objects and drowning.
- Hitting objects or being hit by moving objects should a person fall into a water body.
- Being exposed to contaminated water, or being exposed to flora or fauna, in the water.

4.1. Managing the risks of working on, in or near water

4.1.1. Risk assessment

A risk assessment must be conducted in consultation with relevant workers to identify and assess all the risks associated with working on, in or near water. The risk assessment must be undertaken in accordance with the Hazard Identification and Risk Management Procedure (PRO-00657). This involves the following:

Workplace / asset based risk assessment

- Identify work locations where activities that involve working on, in or near water may be carried out.
- Where possible, the risk of falling into a water body and drowning shall be assessed and captured in the relevant workplace Site hazard register.
- Where a workplace is not covered in any workplace Site hazard register, but is regularly accessed by workers, a risk assessment must be conducted for the site.

Task / activity based risk assessment

- A risk assessment must be completed prior to commencing any work that involves working on, in or near water. Should the activity include any critical controls or a risk of drowning then the risk assessment should be documented.

When undertaking the risk assessment, the following factors must be considered:

- access / egress to or from the location on, in or near water, where the work will be carried out
- the frequency and duration of exposure to the identified hazards
- the water body factors that impact on the consequence of a fall into the water body e.g. depth, speed of the water flow, turbulence, debris load and type and slope of the water bed
- types of equipment to be carried and used
- the knowledge, experience and competency of the workers
- environmental conditions which may impact on the work activity and rescue (i.e. remoteness of the workplace, weather conditions such as wind, rain, temperature and lighting)
- controls that can eliminate or mitigate the hazards in accordance with the hierarchy of controls as outlined in the following section
- the relevant controls outlined in Seqwater Critical Control Handbook (MAN-00313).

- working within 2m of an edge of areas normally filled with water, that may now have become working from height risk, or have other introduced risks.

4.1.2. Hierarchy of controls for managing risks of working on, in or near water

The hierarchy of controls must be used to identify the most appropriate risk control measures to manage the risk. The identification and selection of risk control measures must be undertaken in consultation with workers.

The following are possible control measures associated with working on, in or near water:

Hierarchy of control	Example of possible risk controls
Elimination (Highest level)	Eliminate the potential of falling into water and drowning through work planning and process / workplace design. e.g. remote monitoring / reading device, installation of pipes, tubes and pumps to collect water samples without needing to access the water's edge.
Substitution	Replace the process, plant or equipment with an alternate e.g. fabricate structures on land then transferring them to be installed in position over water, use of drones or roboboats etc.
Isolation	Isolate workers from the water edge by installing a guardrail or barrier around a water body.
Engineering	Design or re-design the process, plant or equipment (i.e. install temporary barrier, provide fixed access / egress).
Administrative	Develop work instructions / risk assessment for undertaking tasks that expose workers to falling into water bodies and drowning. Warning signage.
PPE (Lowest level control)	Hard hat, boots, harnesses and lifejackets.

4.2. Safe work environment

Where reasonably practicable, appropriate access and egress arrangements must be provided and maintained to a workplace where work activities are being undertaken on or in the vicinity of a water body. Requirements of security, ongoing maintenance and emergency rescue must be considered when selecting these access and egress methods.

Where reasonably practicable, appropriate edge protection e.g. handrails and/or guardrails which prevent a worker from falling into a water body must be provided, installed and maintained.

The selection and configuration of the access and egress structures and associated handrails and guardrails must comply with *AS 1657 Fixed platforms, walkways, stairways and ladders – Design, construction and installation*.

Temporary edge protection and barriers should be considered where the provision of permanent structure and protection is not reasonably practicable. The temporary edge protection and barriers must comply with the requirements of the *AS/NZS 4994 Temporary Edge Protection part 1 and part 3.*

Good ground condition and housekeeping must be maintained where reasonably practicable to minimise the risk of falling into a water body.

Appropriate security, lock and signage may be installed to prevent inadvertent access to unprotected water edge at a Seqwater workplace from any workers and members of public.

Where activities that involve working on, in or near water are being carried out at a workplace where natural light is not sufficient, additional lighting that is appropriate to the work being undertaken, should be provided and maintained.

4.2.1. Safe work equipment and rescue equipment

Where identified through a risk assessment or job plan the following equipment in relation to working on, in or near water must be provided:

- Fit for purpose equipment e.g. vessels, kayaks and mobile plant.
- Where there is a risk of falling, a fall restraint system and fall arrestment system e.g. anchor points, ropes and harness.
- Lifejackets (PFDs) that comply with AS 4758.1 Personal flotation devices – general requirements. Appendix B of this procedure must be followed when selecting and using a safe lifejacket.
- Rescue floatation device (e.g. life ring, life floats and throw bag) with a rope attached. Where required it should be in a location readily available from the work being undertaken.
- A first aid kit.
- A Swift water rescue kit.
- Other appropriate equipment to facilitate the retrieval of personnel from the water will be provided based on the risks and control measures identified in the risk assessment.

All equipment used for working on, in or near water must be stored maintained, inspected and serviced as per Seqwater's Safe Work with Plant Procedure (PRO-00867). Where required by the procedure a service tag must be affixed to the equipment.

Situations where a lifejacket (PFD) must be worn

A lifejacket (PFD) must be worn at all times in the following circumstances:

- When on board any Seqwater water craft
- When working near Swift water
- When working within two metres of an unprotected edge where there is a risk of drowning. Examples include, but are not limited to:
  - A sediment basin where there are no handrails to protect an edge where a worker is unable to perform a self-rescue either due to their swimming ability or lack of a safe method of egress. For example, a worker who cannot swim is working near a deep reservoir or a worker who can swim is working near a water basin with no safe method to get out should they fall in
  - Water where both self-rescue or rescue by others is difficult without a lifejacket
  - A water body into which there is a high likelihood of a worker becoming unconscious should they fall in
- Other situations identified through a risk assessment

Situations where a life ring must be available

A life ring should be present in the following circumstances:

- There is an unprotected edge that is part of a fixed structure next to a body of water where there is a risk of drowning

- Task-based risk assessment identifies a life ring is required at site of work as part of potential rescue
- The life ring must be positioned in an area where a rescue may be necessary, ensuring it is easily accessible in the event of an emergency.

4.2.2. Safe work systems

Work planning

Appropriate work planning must be carried out prior to commencing any work activities that involve working on, in or near water. The work planning may involve:

- determining the most appropriate work methods that minimise the risk of falling into water, becoming submerged under water and drowning
- allocating adequate and Competent persons/workers to perform the task
- selecting fit for purpose equipment
- planning most appropriate access / egress to or from the area you will be working in (e.g. it may be safer to access from the water rather than from land)
- planning the journey including journey via vehicle and/or vessel
- developing or reviewing a risk assessment
- developing a rescue plan where identified through a risk assessment

High risk works permits

Where the work activity involves high-risk work activities, the following permits and their support procedures also apply:

- Grid Mesh Removal Permit
- Confined Space Entry Permit

Energy isolation

Where isolating and de-energising the source of a water flow or any other energy sources is identified as a control measure in a risk assessment, the Seqwater Energy Tag and Lockout Procedure (PRO-00014) must be followed. e.g. isolating aerators, clarifiers or pumps.

Remote or isolated work

If the work to be carried out is remote or isolated work, Seqwater's Remote and Isolated Work Procedure (PRO-00018) must be followed.

4.3. Managing the risks – specific activities

4.3.1. Working near water

Working near water bodies in a fixed structure without edge protection

Where workers need to enter and work within two metres of an unprotected water's edge in a fixed structure (e.g. sediment basin), a risk assessment must be developed or reviewed and all the identified controls must be implemented prior to commencing the work. The following controls need to be considered when developing the risk assessment:

- Installation of temporary barriers or edge protection where reasonably practicable.
- Use of a fall restraint system set up by Competent person where reasonably practicable.
- Maintaining visual sight by a second person.
- Wearing a Level 100 or above lifejacket.
- A floatation device for rescue must be in a position to be readily deployable to prevent drowning, e.g. life floats, life ring or throw bag with retriever rope.

Working near aeration tank

Workers must not work within two meters of any aeration tank without an appropriate barrier or other form of fall protection. The aeration tank must be isolated and residual energy released as per the Energy Tag and Lockout Procedure (PRO-00014) prior to entering the tank.

Natural water bodies without fixed protection

Where workers need to access and work within two metres of a natural water body without any edge protection, and the water is or is likely to be deep enough that workers could reasonably drown if they fell in, a risk assessment must be developed or reviewed and all the identified controls must be implemented prior to commencing the work. The following controls need to be considered when developing a risk assessment:

- Options to eliminate or minimise the need to work near the natural water body.
- Minimum of two persons required for the task. Workers should remain within sight and sound of each other at all times.
- Use of a fall restraint system set up by a Competent person where reasonably practicable.
- The means and frequency of welfare monitoring.
- Wearing a Level 100 or above lifejacket.
- Developing a rescue plan where identified as necessary.

Swift water

The need to perform work near Swift water must be eliminated or otherwise minimised as far as reasonably practicable through work planning and workplace or process design.

Where workers need to access and work near Swift water, a risk assessment must be developed or reviewed and all the identified controls must be implemented prior to commencing the work. The following controls must be included in the Swift water risk assessment:

- Minimum of two persons required for the task. Workers should remain within sight and sound of each other at all times.
- Wearing a Level 100 Swift water lifejacket. This jacket must meet the requirements outlined in *AS 4758 Personal floatation devices – general requirements*
- Workers completed the Swift water first responder training.
- Swift water rescue kit and rescue plan.

The following additional controls, may also need to be considered:

- Installation of temporary barriers and edge protections where reasonably practicable.
- Use of a fall restraint system set up by a Competent person.

Note – where temporary barriers, edge protection or fall restraint systems are used, a lifejacket is not required unless otherwise determined by risk assessment.

4.3.2. Working on water

A fit for purpose vessel or other means of transport or floatation equipment must be selected where any work activities require working on a water body. The risk of falling into water from the vessel or other means of transport and floatation equipment must be managed as per the Seqwater Safe Vessel Use Procedure (PRO-00865).

4.3.3. Working in water

Seqwater personnel should not enter and work in Swift water where water is or is likely to be deeper than 1m and where the water speed is more than 0.5m/s.

Where work is required outside of the above accepted levels a documented risk assessment must be completed and approved by a Level 4 Manager. Considerations which must be considered for the documented risk assessment:

- Requirement for training
- Size of person
- Individual capabilities/experience

A decision matrix to support determining whether a Swift water body can be entered is provided in Appendix C.

Where workers need to enter, walk, swim and undertake work in water, a risk assessment must be developed or reviewed and all the identified controls implemented prior to commencing the work. The following need to be considered:

- An assessment of the depth and flow of the water prior to entering the water.
- Minimum of two persons required for the task. Workers should remain within sight and sound of each other at all times.
- Swimming competency of the workers.
- Wearing fit for purpose foot wear e.g. wading boots, gum boots or other foot wear suitable while working in the water.
- Having an appropriate level 100 or above lifejacket readily accessible or wearing of the lifejacket
- Any changes in substrate or objects in water.
- Developing and completing a rehearsal of the rescue plan

4.3.4. Diving

Seqwater personnel are not permitted to perform any diving work. Licensed contractors must be engaged for this purpose. Diving work must be performed in accordance with all legal requirements and applicable standards and codes.

The following table outlines minimum requirement that need to be undertaken at each stage of diving work:

Stage	Seqwater Engaging Officer / Project Manager	Diving contractor
Planning	• Develop scope of work	• Appoint a Competent person to supervise the diving work.

Stage	Seqwater Engaging Officer / Project Manager	Diving contractor
	• Facilitate the site inspection and hazard ID and risk assessment for the contractor • Provide technical information related to Seqwater assets including drawings, specifications. • Communicate Seqwater's expectations around managing safety, environment and drinking water risks while undertaking the work. • Review the SWMS and Dive Plan provided by the contractor.	• Conduct the hazard ID and risk assessment. • Develop a Dive Plan and SWMS. This must address the critical controls for diving. • Provide the Dive Plan and SWMS to the Seqwater Engaging Officer.
Execution the diving work	• Organise access to the site and site amenities • Arrange for the required energy isolation, tag and lockout and de-isolation • Verify the certificates of medical fitness • Verify licences • Monitor the work is completed in accordance with the SWMS and Dive Plan	• The appointed dive supervisor goes through the dive plan with all workers involved in the diving work. • Implement the controls identified in the SWMS. • Undertake the work as per the dive plan • Use the dive safety log to record details of the dive. • Provide ongoing supervision of all workers involved in the diving work. • Initiate rescue plan where necessary. • If diving in treated water, comply with Seqwater's Tools & Equipment Disinfection Procedure (PRO-01560) and Disinfection of Pumps, Hoses, Vac Trucks and Jet Rodding Equipment Work Instruction (PRO-01869)
Completion	• Confirm the work is completed • Retain the relevant records as detailed below.	• Verify and sign off the dive safety log. • Clear the site and hand back to Seqwater. • Retain records of their dive.

The following records must be retained by both Seqwater and the contractor:

- Certificate of medical fitness for anyone participating in the diving work.
- Appropriate qualifications or certificate of attainment to prove the divers' competency.
- A formal written Dive Plan and risk assessment covering the tasks to be undertaken.
- Dive Safety Log.
- Divers current Senior First Aid qualifications.
- Any records that relate to any incidents occurred during the diving work.

4.3.5. Operating mobile plant on or near water

Where workers need to operate a ride on mower, excavator, mobile crane or other mobile plant near a water body, a SWMS must be developed or reviewed and all the identified controls must be implemented prior to commencing the work. The following controls need to be considered:

- Walk through to assess the conditions of the work areas prior to commencing work.
- Fit for purpose equipment.

- Operating the plant to conditions.
- Establishment of exclusion zones and barriers to prevent falling into or submersion under water where reasonably practicable.
- A spotter to guide the operator and monitor person working in the vicinity.
- A lifejacket must be readily available for use.

4.3.6. Driving on a submerged road

Should there be a risk that roads may be submerged, journey planning must be undertaken to eliminate or minimise the need to drive on submerged roads where reasonably practicable (e.g. use an alternative route).

Where any highway, arterial or suburban road is flooded, all Seqwater workers must follow the road closure signs and instructions provided by local councils and authorities.

Where the maximum depth of water is less than 50 mm and there are no signs of erosion or instability of the road base, Seqwater workers are permitted to drive across the submerged road without supervisor's approval. However a pre-crossing assessment must be conducted prior to crossing (Note the results of this assessment do not need to be documented in this situation).

Following a discussion and approval provided by their supervisor, Seqwater workers are permitted to drive across a submerged road where the following criteria is met:

- the depth of water is more than 50 mm but less than 150 mm (around the height of the tyre of the vehicle)
- the water is still, or the flow is less than 0.5 m/s
- the end of the crossing is visible and there are no signs of erosion or instability of the road base
- there is no potential for a sudden increase in the depth or velocity of water

The process for a worker to cross a submerged road is:

1. Arrive at the submerged road
2. Complete a Submerged Roads Pre-crossing Checklist (FRM-00618)
3. Contact their supervisor to discuss the pre-crossing checklist and obtain approval for crossing.
4. Complete the crossing.
5. Contact their supervisor to confirm they have successfully crossed.
6. Where the is a requirement to repeat the crossing for a return journey, the same checklist may be used unless there has been changes to the road conditions. Workers must still contact their supervisor prior to crossing and on successfully completion of the crossing.

Should there be circumstances where a worker needs to drive across a submerged road that does not meet the above criteria, these roads must be proactively identified and a risk assessment completed and approved by the worker's Level 3 Manager. Once the risk assessment is approved, the worker must contact their line supervisor prior to making the crossing to confirm that the requirements established by the risk assessment are met and controls implemented, then once the crossing is completed to verify they have made the crossing safely.

4.3.7. Workers suspended over water

If there is a requirement for workers to be suspended in a workbox or in an elevated work platform (EWP) while working over water, the workers may not be required to be attached to the workbox or EWP via a harness subject to the following conditions:

- The risk of falling into water and drowning is higher than the risk of being injured by hitting the water surface or submerged objects.
- A dedicated spotter/dogger must be present at all times to guide the operator and monitor the person working over water.
- A floatation device is readily accessible for rescue purpose e.g. life ring and life floats.

Other uses of a workbox or EWP outside of these specific circumstances (e.g. when traversing to the water's edge) must follow the Seqwater Working at Height Procedure (PRO-00015).

4.3.8. Operating electrical equipment on or near water

Where practicable, use pneumatic tools, battery powered tools or extra low voltage powered tools when working on or near water to minimise the risk of contact with electricity.

Where electrical equipment and leads are selected to be used on or near water, they must be:

- connected to an earth leakage safety switch or residual current device (RCD) if the equipment and lead needs to be plugged / connected to a main electricity supply
- physically prevented, as far as practicable, from falling into water and protected from exposure to water unless specifically rated for that purpose
- properly water proofed with appropriate International Protection (IP) rating for liquid ingress
- checked for damage before use
- tested and tagged.

All electrofishing works must be conducted in accordance with the Seqwater Boat Electrofishing Safety Manual (MAN-00212). A SWMS must be developed and/or reviewed prior to commencing any boat electrofishing operation.

4.4. Health monitoring and fitness for work

4.4.1. Health monitoring and immunisation

Health monitoring and immunisation requirement for roles that undertake work activities on, in or near water are to be identified and implemented in accordance with the Seqwater Health Monitoring and Immunisation Procedure (PRO-00020).

Immunisations may be required for workers who may be exposed to biological hazards should they be required to work with contaminated water, or may be at a risk of falling into contaminated water (e.g. Hepatitis B).

Health monitoring will include pre-employment medicals to identify any medical conditions that may impact on a worker's ability to rescue themselves should they fall into water.

A worker must notify the relevant supervisor or manager if any adverse changes to their medical conditions that may affect the health and safety of the worker. Appropriate control measures and reasonable adjustments can be identified and implemented to support the worker based on a risk assessment.

4.4.2. Fitness for work

Workers who undertake the following activities on, in or near water must have a Breath Alcohol Concentration (BrAC) of 0.00%:

- work associated with Swift water

- diving work
- operation of a vessel.

5. Definitions

Term	Definitions
Automatically inflated lifejacket	A lifejacket, in which inflation is effected as a result of immersion in water without the wearer required to carry out any action at the time of immersion.
Body of water	Any human made or natural collection of water that presents a potential hazard. This includes dams, reservoirs, tanks, rivers and lakes.
Competent person	A person who has acquired through training, qualification or experience, knowledge and skills to safely and effectively carry out the task.
Employees	Means persons employed directly by Seqwater in a permanent, temporary or casual capacity.
Floodwater	Water that overflows from a river, lake, etc during a flood event. The velocity, depth and debris load of floodwater is hard to predict as situations change rapidly.
Guardrail	A structure to prevent persons from falling off any platform, walkway or landing. The height of a guardrail measured vertically above the surface shall be not less than 900 mm.
Leader	Means any Level 1, 2, 3, 4 and 5 worker with responsibility for managing a functional area of the business, including people management responsibilities within their functional area.
Lifejacket	A garment or device which, when correctly worn and used in water, will provide the wearer with a specific amount of buoyancy to support the wearer while in the water and prevent drowning. Also known commonly as a Personal Flotation Device (PFD).
Swift water	Any water with a flow of more than 0.5 m/s.
Unprotected edge	A drop off or fall from any height that is not physically protected or is created by the removal or modification of an existing structure which is used to prevent exposure to an unprotected edge, such as removal of flooring, guard rail, hatches, pit covers or manholes.
Worker(s)	Includes all permanent, temporary, and casual employees of Seqwater, and: • vocational and work experience placements • volunteers • contractors and consultants employed by another entity but temporarily assigned to do work for or on behalf of Seqwater.

6. Roles and Responsibilities

Role	Responsibility
Engaging Officer (including project managers)	• Identify the risks associated with working on, in or near water at the work planning and scoping stage. • Communicate with the contractors of the identified risks and the requirements from this procedure. • Obtain and review the SWMS and other required documents to ensure the risks associated with working on, in or near water are identified and appropriate control measures are developed. • Conduct assurance activities to ensure controls are implemented.
HSW Team	• Provide advice, support and consultation on managing the hazards and risks, including identification and implementation of effective risk controls.
Line Supervisors	• Make sure that risks associated with working on, in or near water by members of their team are identified, assessed and managed in consultation with workers and/or health and safety representatives. • Implement and regularly review controls to mitigate the risks. • Provide workers with fit for purpose equipment as required by this procedure and ensure they are correctly used and maintained. • Develop and review SWMSs for any work activity that involves working on, in or near water as per this procedure.
Managers and Coordinators	• Communicate, consult and ensure a process or system is in place to supervise workers involved in activities where they may be exposed to any risks associated with working on, in or near water. • Regularly monitor and review the effectiveness of controls for managing the risks related to working on, in or near water within their area of responsibility and implement corrective actions and treatment plans where required.
Recreation and Catchment Service	• Provide advice, support and monitoring in relation to the implementation of the Seqwater Safe Vessel Use Procedure (PRO-00865). • Establish and implement processes to ensure the lifejackets used in Seqwater are properly selected, used and serviced.
Workers	• Conduct a risk assessment e.g. SWMS and implement risk control measures prior to commencing any work that involves working on, in or near water. • Turn up fit for work when undertaking any tasks that involve working on, in or near water. • Wear and maintain personal protective equipment (PPE) as required by this procedure.

7. Training and Competency

Requirement	Description	Refresher Timeframe	Target Audience
Perform land based swift water and floodwater rescue and recovery (PUASAR033)	Provide the skills and knowledge required to perform land based swift water and floodwater rescues and recoveries as a member of a specialist team.	Nil	Any workers who may be required to work near swift water.

Vessel operation related training for workers operating vessels and vessel induction for passengers - refer to Seqwater Safe Vessel Use Procedure (PRO-00865) for further information.

Appropriate instruction on how to check, use and care of a lifejacket must be provided to any workers who are required to wear a lifejacket – refer to Training in Check, Use and Care of Lifejackets (GDE-00323) for instruction on how to complete training. This instruction can be combined with any other training outlined above.

8. References and Related Materials

Description	Location
AS 1657 Fixed platforms, walkways, stairways and ladders – Design, construction and installation	Intertek Inform
AS 4758.1 Personal floatation devices – general requirements	Intertek Inform
AS/NZS 4994 Temporary edge protection	Intertek Inform
FRM-00618 Submerged Roads Pre-crossing Checklist	REX
GDE-00323 Training in Check, Use and Care of Inflatable Lifejackets	REX
MAN-00212 Boat Electrofishing Safety Manual	REX
MAN-00313 Critical Control Handboook	REX
PRO-00014 Energy Tag and Lockout Procedure	REX
PRO-00015 Working at Heights Procedure	REX
PRO-00018 Remote and Isolated Word Procedure	REX
PRO-00020 Health Monitoring and Immunisations Procedure	REX
PRO-00657 Hazard Identification and Risk Management Procedure	REX
PRO-00865 Safe Vessel Use Procedure	REX
PRO-00867 Safe Work with Plant Procedure	REX
PRO-01560 Tools & Equipment Disinfection Procedure	REX
PRO-01869 Disinfection of Pumps, Hoses, Vac Trucks and Jet Rodding Equipment Work Instruction	REX
TEM-00027 High Risk Work Rescue Plan Template	REX
Work Health and Safety Act 2011 (Qld)	www.legislation.qld.gov.au
Work Health and Safety Regulation 2011 (Qld)	www.legislation.qld.gov.au

Appendix A – Examples of work activities and controls

The following table outlines activities undertaken in Seqwater that may expose workers to the risks of falling into water and drowning. More specific control measures need to also be identified based on the characteristic of the workplace and activity.

Scenario	Risk controls to be considered
Inspection at a WTP / reservoir	• Stay within the barrier or edge protection where possible • Maintain visual contact from second person • Wear a lifejacket • Rescue floatation device e.g. life ring readily accessible • A fixed ladder (or stairs) for ease of exit
Inspection at a dam or spillway	• Stay within the barrier or edge protection where possible • Maintain visual contact from second person • Wear a lifejacket • Life ring readily accessible
Maintenance work at a spillway	• Stay within the barrier or edge protection where possible • Set up temporary barricade where practical • Set up fall restraint system • Maintain visual contact from second person • Wear a lifejacket • Rescue plan and equipment
Water sampling and Hydrographical work e.g. gauging	• Plan the trip (road and vessel) and work method to minimise the risk • Stay within the barrier or edge protection where possible • Minimum two persons • Wear a lifejacket • Rescue plan
Water patrolling	• Plan the trip • Fit for purpose vessel • Competent Vessel Master and Crew (mandatory) • Vessel induction (mandatory) • Wear lifejacket when on board a vessel (mandatory) • Emergency response plan and drill as per the Vessel Safety Manual (VSM)
Mowing or excavating near a water body	• Select the most appropriate work method to minimise the risk • Walk around to assess the environment and condition • Fit for purpose equipment • Set up temporary barrier where reasonably practicable • Use a spotter • Signs or flags
Driving across a spillway	• Fit for purpose vehicle • Depth and velocity of water is known and is appropriate for vehicle

Appendix B – Guidelines for lifejacket selection, use and service

Selecting a fit for purpose lifejacket

To ensure the lifejacket selected is fit for work and reduces the risk of drowning, the following factors must be considered:

- location in which the lifejacket will be used
- conditions of work environment (e.g. wind, rain)
- condition of water bodies e.g. depth of water, flow speed of water and objects in water
- type of work activities
- swimming skills of the worker
- type of clothing worn and equipment being carried.

To select the most appropriate lifejackets, the following features of a lifejacket should be considered:

- level of buoyancy of a lifejacket (Level 150, level 100 or level 50)
- types of buoyancy media (inherent buoyant e.g. foam, hybrid or inflatable)
- activation methods for inflatable lifejacket e.g. automatic or manual inflation
- other features needed (such as location aids, buddy lines, whistles, integrated with harness etc)
- size of the lifejacket (extra-large, large, medium or small).

The following table outlines Seqwater's minimum expectations around the selection of lifejackets. Any decision to select a lower level lifejacket must be supported by a risk assessment and approval by the workers manager.

Task Type	Type of lifejacket required	Comments
Access and work within 2 metres of unprotected water edge – man made water bodies Example activity: Conduct an inspection at a WTP / reservoir.	• Level 100 or above • Foam • Auto or manual inflated	
Access and work within 2 metres of unprotected water edge – natural water bodies e.g. dams, weirs and river banks Example activity: Water sampling	• Level 100 or above • Foam • Auto inflated or manual inflated	
Access and work within 2 metres of unprotected water edge – Swift water Example activity: Water sampling, Hydrographical and research activities	• Level 100 or above • Auto inflated – wet proof • Hybrid (can be activated via automatically and manually)	
On board of an Seqwater vessel Example activity: Water patrolling	• Level 150 or above • Manual inflated or Auto inflated	
Operating a mobile plant near a water body Example activity: Mowing or excavating	• Level 100 or above • Auto inflated	Lifejacket must be readily and easily accessible

Purchase

All lifejackets must be purchased through Seqwater's Stores. Contact the regional stores to place an order for the lifejacket that you select.

Store, use and care

Once a lifejacket is issued to a site, vessel or to a person, the relevant line supervisor, vessel custodian or the person must ensure the lifejacket is properly stored and cared for as per the manufacturer's instruction.

The lifejacket must be used to its designed purpose, as per the manufacturer's instruction. Appropriate instruction and training on how to check, use and care of a lifejacket must be provided to any workers who are issued a lifejacket. Refer to Recreation & Catchment Services – Training in Check, Use and Care of Lifejackets (GDE-00323) for instruction on how to complete training.

Point of use checklist provides the steps for conducting a safety inspection before each use (GDE-00323). The checklist should be laminate and fixed at the point of storage of life jackets.

Service and inspection

All lifejackets that are owned by Seqwater must be regularly serviced and inspected by a Competent person as follows.

A service schedule will be maintained in Risk Wizard through the use of a dedicated work order (GDE-00323). The relevant line supervisor, vessel custodian or the person allocated a life jacket are required to send their lifejackets to the Seqwater Stores for services as per the CIS work order. The same type of lifejacket will be provided to cover the period throughout the service and returning time.

Appendix C – Decision matrix for Swift water entry

The following table provides a decision matrix on whether a water body can be entered based on the speed of water and depth of the water. Please note that other risk factors of a water body must also be considered prior to entering a water body e.g. surface stability, visibility of the water and objects in water.

Never enter Swift water where the speed of water and depth of water cannot be safely assessed.

Depth of water (mm)	Speed of water (m/s)										
		0 - 0.5	0.5 – 0.6	0.6 – 0.7	0.7 – 0.8	0.8 – 0.9	0.9 – 1.0	1.0 – 1.25	1.25-1.5	1.5 – 1.75	1.75-2.0	>2.0
	>= 1000	Not Swift water	N	N	N	N	N	N	N	N	N	N
	1000-900		N	N	N	N	N	N	N	N	N	N
	900-800		Y	N	N	N	N	N	N	N	N	N
	800-700		Y	Y	N	N	N	N	N	N	N	N
	700-600		Y	Y	Y	N	N	N	N	N	N	N
	600-500		Y	Y	Y	Y	N	N	N	N	N	N
	500-400		Y	Y	Y	Y	Y	N	N	N	N	N
	400-300		Y	Y	Y	Y	Y	Y	N	N	N	N
	300-200		Y	Y	Y	Y	Y	Y	Y	N	N	N
	200-100		Y	Y	Y	Y	Y	Y	Y	Y	N	N
	<100		Y	Y	Y	Y	Y	Y	Y	Y	Y	N

Legend:

- N – not allowed to enter
- Y – can enter the water with appropriate controls implemented