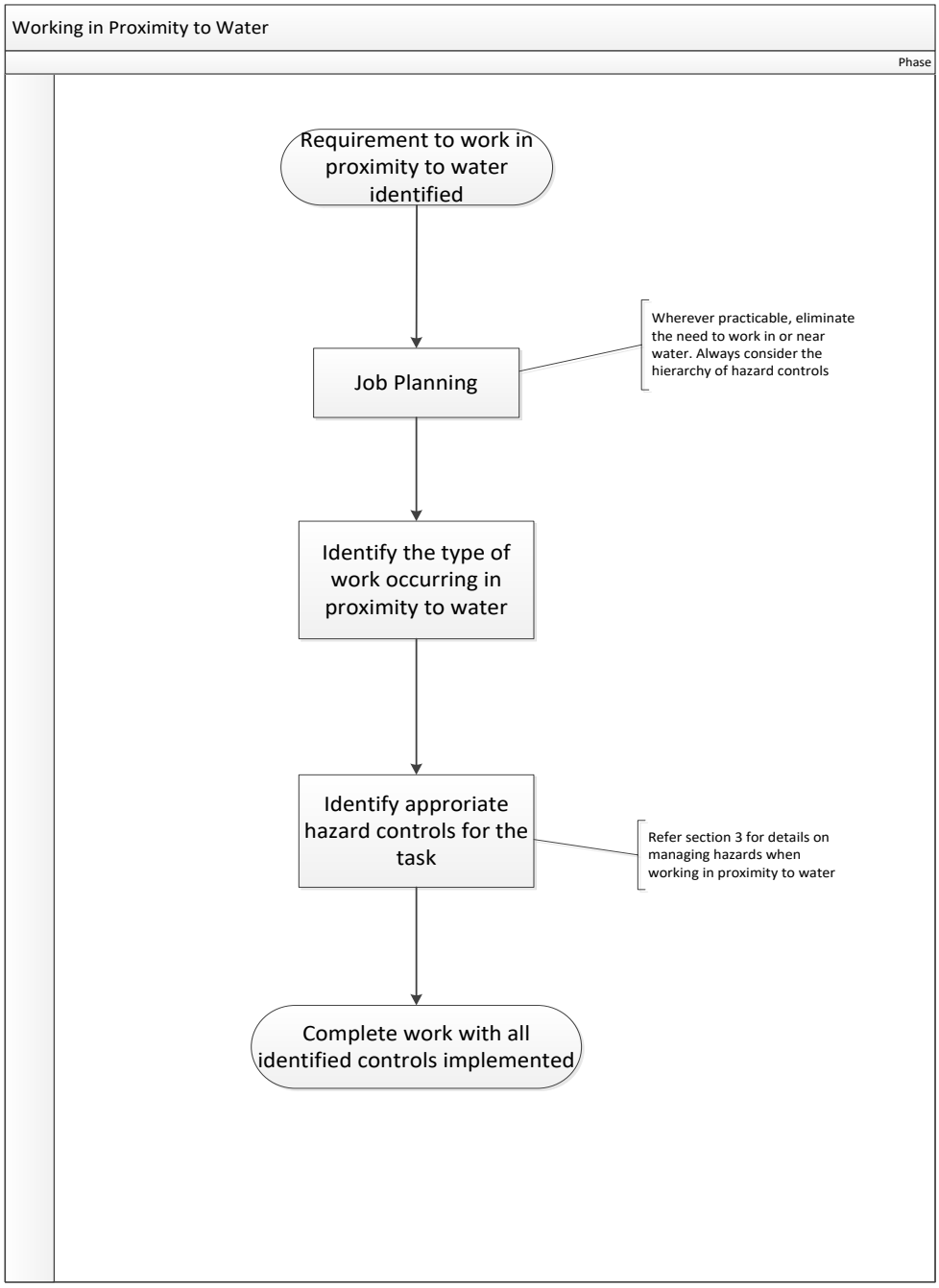
Purpose

To describe how hazards associated with working in proximity to water will be managed if they cannot be eliminated

Scope

This procedure applies to all assets and premises owned, leased or occupied by Melbourne Water employees and contractors. It covers all types of work where there is a potential for a person(s) to fall into, or drown in, a body of water.

Flow Diagram



Procedure

1. Job Panning

1.1. Eliminating the Need to Work in Proximity to Water

When the need to work in proximity to water has been identified, apply the hierarchy of controls to see if the work can be completed in a different way.

Examples of alternate work methods that should be considered to eliminate the need to work in proximity to water include:

- Submersible remote operated vehicle (ROV) to eliminate need to undertake diving activities
- Remotely operated bathymetric survey boats
- Unmanned floating monitoring vessels
- Auto Samplers

Where elimination is not practicable, work in proximity to water may proceed in accordance with this procedure.

2. Hazards to Consider when Working in Proximity to Water

There are numerous hazards associated with working in proximity to water that need to be considered and controlled. These include, but are not limited to:

- Steep/challenging terrain
- Slippery surfaces (soil, rocks), Character of the bed of the waterway (mud, rock, silt, sand etc)
- Thick vegetation, Fallen trees/logs, Hanging branches/tree limbs, Unstable trees
- Fast running water and currents
- Discoloured water (making depth difficult to judge)
- Unstable ground (undercut or eroded banks)
- Wildlife (snakes, stock, feral animals)
- Dealing with hostile parties
- Remote site location
- Use of equipment (including mobile plant) and vessels
- Working at heights (risk of falling where there is a considerable drop in the natural landscape)
- Bushfire danger periods
- Storm or flood conditions
- Discarded syringes and other debris, Water Contamination (biological hazards)
- Sewerage
- Aerated water (reduced buoyancy)
- Spray or aerosols from sewage tanks/ponds
- Low water temperature
- Depth of waterway or water body
- Proximity to operating assets (eg: stormwater outlet, pump suction inlet etc)

3. Working in Proximity to Water

3.1. Entering Water on Foot

Entry into water on foot may be required for the collection of samples, investigative and maintenance works and various community engagement activities.

Before entering water on foot:

- Verify the speed of water is less than 1m/sec*. Do not enter the water if > 1m/sec
- Assess entry and exit points to ensure all hazards are appropriately managed (refer section 2)
- A minimum of two people are required when entering into water on foot. Position a rescue person(s) with a throw line/throw bag/rescue tube so that they are in place and ready to provide bracing support for any rescue required. These people should be positioned in front of the person entering the water and be downstream at all times.

**1m/sec - Use something that floats throw it in the water and time it over two reference points of a known distance. Reference points could be two rocks, trees anything as long as you know the distance. This technique is used to provide a rough guide.*

Waders must be worn if the water is higher than calf depth. When wearing waders, only enter water up to "hip-depth" which will vary for people of different heights. Every time waders are used they should be inspected prior to use for any tears and possible leaks. Wader Belts should be used to prevent the waders being filled in the event of a fall in water. General care should also be taken when storing waders to avoid damage, tears etc.

In addition to waders, Personal Floatation Devices (PFDs) or life jackets shall be worn where there is a risk of drowning. PFDs must comply with *AS 4758.1:2008 Personal floatation devices – General requirements.* PFD's shall be visually inspected prior to each use for any visible signs of damage or deterioration

Where regular site access is required, consider installing steps, paths and handrails from the top of the bank to the water's edge to reduce the likelihood of slips, trips or falls. Engagement with the relevant asset manager will be required to make these permanent installations.

3.2. Entering Water using a Vessel

Entry into waterways using powered and unpowered vessels (eg: boats, barges, canoes, kayaks, etc.) may be required for the collection of samples, investigative and maintenance works and various community engagement activities..

Before entering water in a vessel consider the most appropriate vessel for the task taking into account water depth, access, vessel condition and crew experience and competency.

Consider site and upstream environmental conditions prior to using the vessel. Work must not commence if the Bureau of Meteorology has issued a flood, strong wind, gale or storm warning for the area.

Personal Floatation Devices (PFDs) or life jackets shall be worn by all people entering water using a vessel. PFDs must comply with *AS 4758.1:2008 Personal floatation devices – General requirements.* PFD's shall be visually inspected prior to each use for any visible signs of damage or deterioration. Additionally, all PFDs used on Melbourne Water owned or operated vessels must be serviced every 12 months by an accredited service provider.

A minimum of two people are required to undertake all work from a powered vessel. However, one person/operator on the vessel is acceptable whilst launching or retrieving the vessel. When working from a non-powered vessel (ie: canoe or kayak) work should be done in pairs of vessels and each vessel must remain within eye site/verbal communication distance.

Where possible two people should load and retrieve the vessel so that correct lifting/pushing/pulling techniques can be applied. Where possible use mechanical lifting aids or drive on/drive off trailer set up with boat catch or latch.

3.2.1. Vessel Requirements

Vessels used for any commercial, government or research activity, need a:

- certificate of survey
- certificate of operation
- safety management system

Vessel owners must display a unique identifier on all vessels, and comply with the general safety duties relating to domestic commercial vessels, in accordance with the *Marine Safety (Domestic commercial vessel) National Law Act 2012*.

3.2.2. Certificate of Survey

A Certificate of Survey shows that a vessel has been surveyed and meets the standards for construction stability and safety equipment. The Certificate of Survey is undertaken by an authorised provider/contractor.

A Certificate of Survey is required for vessels that are:

- greater than or equal to 7.5m in length
- carrying passengers
- operating beyond sheltered waters
- otherwise high risk

Where exemptions are permitted the relevant conditions listed in the Exemption need to be adhered to and acknowledged through notification from Australian Maritime Safety Authority (AMSA).

3.2.3. Certificate of Operation

A Certificate of operation describes the conditions under which a vessel must operate, and details:

- the vessels used in the operation
- how and where the vessels can operate
- crew required to operate a vessel safely.

The Certificate of operation also sets out the need for a safety management system and is valid for up to five years.

All domestic commercial vessels are required to have a Certificate of operation unless they are exempt. Details about the types of operations that may be exempt, are contained in:

Exemption 03—*Marine Safety (Certificates of operation) Exemption 2017*
Exemption 04—*Marine Safety (Recreational use) Exemption 2013*
Exemption 07—*Marine Safety (Temporary operations) Exemption 2016*

3.2.4. Safety Management System

The Safety Management System (SMS) documents the process for proactively identifying and managing risks associated with vessel operations. The SMS should be based on a risk assessment of the vessel operations and explain how safety will be managed.
The SMS requirements are contained in:

- Part E of the National Standard for Commercial Vessels—Class 1, 2 and 3 vessels
- Part F2 of the National Standard for Commercial Vessels—Class 4 vessels.

The operator, master and crew of each vessel should all be involved in carrying out the risk assessment and in developing, reviewing and updating the SMS.
Below are some sample safety management systems for different types of operations:

- Class 1 Operation—complex operation
- Class 1 Operation—less complex operation
- Class 3B Operation
- Class 3E Operation
- Class 4D Operation
- Class 4E Operation

3.2.5. Qualifications

The person in control of a manned powered boat must have as a Minimum Requirement - Coxswains Exemption 38 (Low Complexity Duties)

Exemption 38 allows the vessel operator to perform a range of low complexity duties during daylight hours. They can operate a vessel up to 12 metres long:

- with an inboard engine up to 100 kilowatts or outboard engine up to 250 kilowatts.
- with an inboard and outboard engine up to 500 kilowatts when towing people and only in waters that are water-ski areas approved by a state or territory authority.

They can operate the vessel in the following places and areas:

- in a marina or mooring area
- inland waters
- any waters in a tender or auxiliary that are within 1 nautical mile from a parent vessel provided that you are in sight and in communication with that parent vessel.

If they are not carrying passengers, they can also operate the vessel in the following places and areas:

- Smooth waters, including inland waters.
- Any waters within 1 nautical mile from each point of departure and within 1 nautical mile of the coast.
- Any waters of an aquaculture lease approved by a state or territory authority and any approved waters used for the daily transit to and from the aquaculture lease for operation under this exemption.
- Any waters within 250 metres of a structure fixed to the shore.
- Sheltered waters within 2 nautical miles from the coast.

Advisory note—Limitations and conditions for Exemption 38 provides more details on operating under this exemption.

3.2.6. Safety Equipment

The required safety equipment shall be listed in the Safety Management System and reviewed as part of daily operations, with all records kept in appropriate Log Books.

3.2.7. Inspections and Maintenance

Routine inspections and maintenance shall be carried out on all Melbourne Water owned water vessels and trailers. Inspections and maintenance shall be carried according to the manufacturer's instructions and any relevant standards, with appropriate job plans set up in MAXIMO.

3.3. Working Adjacent to or Above Water

Working adjacent to water may be required for the collection of samples, investigative and maintenance works and various community engagement activities. Work above water may occur on cross over platforms , walkways, public viewing platforms, or steps/platforms built for accessing the water for sample collection, inspections or maintenance.

When working adjacent to or above water:

- Ensure all walkways over water have adequate edge protection fitted in accordance with CORP AM S020 Access Covers Platforms and Walkways Standard
- Where edge protection is not reasonably practicable then other means of fall prevention shall be used
- Assess the potential impact of operating assets in and around water and isolate if necessary or install an exclusion zone
- Never use pipes or other structures not specifically designed or intended for human access as walkways or work platforms
- Check load limits of walkways or structures prior to using them for vehicle or plant access (i.e. if a bridge or walkway is designed for pedestrian access only, do not drive a vehicle on it)
- Ensure appropriate signage and barricading is in place when platforms and walkways above water can normally be accessed by the public
- Only operate vehicles on designated roadways and only travel in areas where there is adequate visibility and access

3.4. Working in or Adjacent to Water with Mobile Plant

When using mobile plant (bulldozer, loader, excavator, truck, compactor, dumper, grader, crane etc) in or adjacent to water ensure:

- Mobile plant is only operated by qualified operators
- Operators of mobile plant on vessels are authorised by the master or owner of the vessel before carrying out any work.
- Mobile plant on vessels is fixed, balanced and securely anchored
- Mobile plant is kept away from dangerous locations such as openings, uneven banks, steep or unstable edges
- Zones where mobile plant is operating is assessed for structural stability, clearly demarcated and properly fenced off
- An observer is provided if the view of the operator is obstructed
- That anyone working in an Elevated Work Platform that is above water wears a PFD in addition to a safety harness or uses a safety harness that has floatation capabilities

3.5. Diving

Use only diving contractors with appropriate qualifications and certification. The relevant Melbourne Water Project Manager or Work Initiator is responsible for verifying these qualifications prior to engaging the contractor and immediately prior to diving.

Where possible, a survey of the dive location shall be undertaken using a submersible ROV to aid in dive planning and reduce dive time.

A Diving Project Plan (DPP) must be prepared by the diving contractor prior to commencing all dives. The DPP shall as a minimum include the following:

- the method for carrying out the diving work
- the tasks and duties of each person involved in the dive
- the diving equipment, breathing gases and procedures to be used in the dive
- dive times, bottom times and decompression profiles
- hazards relating to the dive, and measures to be implemented in the control of risks associated with those hazards
- emergency procedures

All DPP's shall be reviewed and approved by the relevant Melbourne Water Project Manager or Work Initiator. Additionally, dives at a depth of greater than 15 metres must be approved by the relevant Melbourne Water General Manager.

4. Remote and Isolated Work

The most significant risk associated with working alone or remotely is sustaining an illness or injury that precludes self-rescue or timely access to medical attention. People working alone or remotely should make provision for having their welfare monitored by another party. (Refer CORP H&S 073 Remote or Isolated Work). The level of monitoring necessary is determined by the degree of risk based on the likelihood of exposure to the hazards associated with the work, or the work environment.

5. Engagement of Contractors

All contractors used to perform work in proximity to water shall be engaged in accordance with the Melbourne Water Procurement Framework and CORP H&S 003 Contractor Safety Management. Safety Management Plans submitted by the contractor undertaking work in proximity to water must address the associated hazards adequately.

6. Task Risk Assessment

Whenever work is conducted in proximity to water, a Task Risk Assessment (or equivalent) must be completed by the person doing the work. The Task Risk Assessment (or equivalent) must highlight the specific hazards related to the site, environment condition and any other consideration of the site that present a safety hazard.

The Task Risk Assessment must cover the full scope of works being undertaken and consider:

- any potential emergency response requirements including specific rescue equipment
- the location of the work (i.e. remote or isolated)
- condition of the environment
- Simultaneous operations (SIMOPS)
- The use of equipment in proximity to water in terms of placement, movement, access and egress
- The loading and retrieval of vessels

If at any point during the work, conditions change, the task risk assessment must be revisited by the work party and updated as required. The Task Risk Assessment must be available prior, during and after the completion of all work activities.

Training

Role	Training Requirements
Individuals that are required to use waders when performing tasks within the scope of their position	Safe Use of Waders Training

Responsibilities

Role	Responsibility
Individuals	Consider the hazards associated with Working on proximity to Water prior to commencing all work Develop Task Risk Assessments and any associated work procedures using this procedure as the minimum standard to be applied. Report to their immediate manager/supervisor all events relating to working in proximity to water and record the event in IRIS
Team Leader / Manager	Ensure they are familiar with this procedure Ensure that all TRAs are prepared and address the requirements of this procedure. Ensure adequate hazard identification, risk assessment and control for working in proximity to water Ensure that people undertaking work in proximity to water are competent to do so Conduct incident investigations that are related to working in proximity to water
Project Managers	Ensure project hazard analyses are conducted at Planning stage and eliminate the need to work in proximity to water wherever possible Ensure that all TRAs, and other documentation associated with CORP H&S 003 are prepared and address the requirements of this procedure at Implementation stage. Ensure that any people undertaking work in proximity to water are competent to do so Conduct incident investigations that are related to working in proximity to water
Safety Managers	Support the business to understand and effectively implement the requirement of this procedure Provide management support for the effective and efficient resolution of any health and safety issues in relation to working in proximity to water
Vessel Asset Owner	Ensure a Safety Management System is in place for all vessels in their control.

Definitions

Reference	Definition
Proximity	In, immediately next to and within 1 metre of water.
Vessel	Boat (powered or not), canoe (powered or not), barge or other watercraft
Water	For the purpose of this procedure the locations in which water is found includes (but is not limited to): Natural Waterways – streams, creeks, rivers, bays, wetlands, retarding basins, sediment pond Water Treatment Assets – settlers, filters, clarifiers, open tanks Waste Water Treatment Assets - inlet carriers, clarifiers, sedimentation ponds, drying pans, aeration tanks, holding basins, treatment tanks Water Supply Assets – reservoirs, tanks, aqueducts
Boat	A small vessel propelled by sails, oars or a small engine
Canoe/Kayak	A light narrow boat with pointed ends and no keel, propelled with a paddle or paddles or self-propelled duck feet paddles

References

Reference	Definition
Act	Occupational Health & Safety Act 2004 Marine Safety (Domestic Commercial Vessel) National Law Act 2012
Regulations	Occupational Health & Safety Regulations 2017
Compliance Code	Nill
MWC	CORP H&S 003 Contractor Safety Management CORP H&S 008 – Task Risk Assessment CORP H&S 073 Remote or Isolated Work CORP AM S020 Access Covers Platforms and Walkways Standard WLD TRA 059 Working in Water with Waders WLD TRA 012 Boat & Barge Operation
AS/NZS	AS4994.1:2009 Temporary edge protection – General requirement AS 4758.1:2008 Personal flotation devices – General requirements.

Document History

Date	Reviewed/ Actioned By	Version	Action
Aug 2018	Safety Manager – Program Innovation and Governance	3	Minor grammatical changes in various sections based on feedback
May 2018	Safety Manager – Program Innovation and Governance	2	New document created in consultation with SMEs, HSR's and business stakeholders