



Health & Safety Standard Operating Process

Working In, Over and Around Water

HS-SOP-05

Produced by

HSS – Facilities & GS Department

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HS-SOP-05: Working In, Over and Around Water

1 Overview

1.1 Purpose

The purpose of this Standard Operating Process (SOP) is to provide general guidance pertaining to work activities undertaken in, over and around water at Qatar University.

This SOP establishes the requirements so that the risks associated with working in, over and around water are assessed, that control measures are implemented in accordance with the hierarchy of controls and that control measures are taken to prevent injury, illness and disease to persons who might be exposed to risks arising from those activities.

1.2 Hazards and Risks

1.2.1 Hazard Definition

Hazards associated with working over, in, and around water include:

- Falling in the water
 - Adverse weather conditions
 - Remote Locations
 - Inadequate/loss of communication
 - Unexpected events/emergencies
 - Dangerous marine flora and fauna
 - Biological or chemical hazards associated with industrial or contaminated water
 - Diver skills
 - Diving associated conditions
 - Faulty equipment
 - Operating/using vessel and equipment
 - Heat stress from working in high temperatures
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1.2.2 Potential Outcomes

Water-related hazards can lead to:

- Death from drowning
- Extended exposure to adverse weather (e.g., if a vessel becomes stranded)
- Lost at sea
- Heat stress

1.3 Key Terminology

Term	Definition
Competent Person	Someone with the specialist knowledge, training, experience and abilities to carry out defined work.
Personal Protective Equipment (PPE)	Any device or appliance designed to be worn or held by an individual for protection against one or more health and safety hazards.
Vessel	A ship or boat licenced by the Qatar Coastguard Department for seagoing service

2 Scope

The requirements outlined in this SOP are applicable to all QU employees, students, contractors, and visitors who are working for QU, and/or conducting work on QU premises. The following subsections outline some of routine and non-routine activities in which the conditions covered by this technical guidance may be encountered.

2.1 Routine

- Sampling activities involving vessel and diving operations (e.g. Environmental Sciences Research Center)
- Monitoring, operation and maintenance activities in Central Services Unit (CSU), Sewage Treatment Plant (STP) and water tanks.

2.2 Non-routine

- Recreational Trips
- Watersports (e.g. swimming, diving, water polo, etc.)

3 Risk Prevention

3.1 General Prevention Requirements

The following general prevention practices should be implemented to minimize the risk of water-related injury or incident:

- Visually inspect embankments to assess slip and trip hazards;
- When walking adjacent to or in water test the ground to avoid being trapped in soft marine sediment;
- Ensure employees stay at a safe distance from the edge of waterways;
- Do not enter water bodies without Personal Floatation Devices (PFD).

3.2 Specific Prevention Methods

When planning work in, over or around water, QU shall consider if there are specific water related risks such as:

- Changing environments, including, water depth, swells, surges, currents, tides and weather conditions including wind and flooding of waterways.
- Stagnant water swamps and tall reeds, which when disturbed may release high concentrations of hydrogen sulphide which can result in serious respiratory difficulties such as asphyxiation and neurological dysfunction.
- people falling from structures or scaffolds into water;
- inappropriate lighting and poor visibility;
- electrical equipment coming into contact with water;
- difficulty in conducting rescues;
- water current and environment; and
- People unable to swim.

4 Safe Work Practices

4.1 General Worker Safety

When performing work in the summer or high temperature environments, QU shall ensure that control measures are in place to eliminate the risk of heat stress, as far as reasonably practicable.

QU shall ensure a fence or barrier is provided where there is a risk of people falling into water. Barriers could include temporary walkways and handrails, walkways, stairways and ladders or scaffolding 'A Frame' barriers or tube and fitting guardrails.

Where required, QU shall ensure lighting is provided for the duration of work as required to ensure that work can be carried out safely.

Where electrical equipment needs to be used, QU shall ensure that the use of electrical equipment is to be strictly controlled and appropriate control measures are in place to ensure electrical equipment or electrical leads are not long enough to touch the water.

Prior to undertaking activities near water, the QU employee leading the activity involving working near water shall obtain the local weather conditions prior to commencement of activities and also monitor weather conditions throughout the duration of activities. Weather conditions shall be communicated to all employees at the beginning of each day's work or shift. Special attention shall be given to the following weather conditions given the potential risks associated with them: Hot weather, rain, rising winds, fog and sea mist.

Should weather conditions deteriorate while undertaking work activities, work will be suspended until it is deemed safe to resume works?

4.2 Qualified Worker Safety

For each trip made on the vessel, QU shall ensure there is a lead person to ensure the safety of the vessel and passengers on board.

The Lead person shall be the single command authority for vessel safety once underway and be responsible for raising any notification reports for any HS incidents that occur during the use of the vessel.

Employees on board the vessel shall wear their lifejackets at all times and shall take reasonable care of their own health and safety.

Employees shall follow instructions issued by the Lead person and not to misuse or interfere with any critical safety equipment.

4.3 Specific Safety Requirements

4.3.1 Working In Water - Diving

When working in water, consideration is to be given to:

- Having an observer in place when working in the water.
- Water temperatures and the duration that work is to be undertaken within water.
- Biological hazards that may be present and any required vaccinations and health monitoring.

When performing any diving operations, QU shall ensure that divers fully comply with the requirements of the following standard: *AS/NZS 2299.1:2007 Occupational diving operations - Standard operational practice*.

4.3.2 Working On Water – Use of Water Vessels

When working on water, using a vessel, the following is to be considered:

- Identify the most appropriate vessel for the task. It should be of sufficient size and stability to accommodate staff, tools, and material required to complete the work task.
- Qatar Coast Guard requirements for use of the vessel and the equipment the vessel needs to be equipped with must also be identified and complied with, along with operator licensing requirements.
- The equipment needed for water vessels may include life jackets, life buoys, sufficient fuel, oars, flares and communication equipment such as UHF radio, mobile or satellite phone.
- Assess the vessel and its equipment to ensure seaworthiness before accessing the vessel, this must be judged in conjunction with daily weather forecasts and water conditions.
- Use manual handling principles when transporting water vessels.
- Tie-off or have one team member firmly hold the vessel in position while other team members access the vessel.
- Care must also be taken when transferring between vessels.
- Staff that are required to operate a motorized boat are to have the appropriate required training and licensing.
- In the event QU engages a boat driver, their licenses must be viewed prior to boarding the vessel.
- Staff must keep limbs inside of the vessel while moving.

- Staff prone to sea sickness or unable to swim must inform their supervisor so that suitable control measures are in place prior to undertaking activity.
 - Vessel insurance should cover standard term risks associated with working vessel operations.
 - Any equipment fitted to a vessel after purchase must not compromise the safety of the vessel.
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4.3.3 Working Over Water – From Height

The following is to be considered when working above water:

- The potential for falls such as working from elevated platforms.
 - Falling objects, particularly if people are working below.
 - Having suitable PPE such as a fall arrest systems and self-inflating floatation devices.
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4.3.4 Working around Water

When working around, consider the following:

- Ensure plant, machinery, equipment and people stay at a safe distance from the edge of waterways to prevent injury or soil erosion resulting from the collapse of embankments.
 - Visually inspect embankments to assess slip and trip hazards and test the ground to avoid being trapped in soft marine sediment.
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4.3.5 Use of Chemicals

Measures that should be taken to control the access of chemicals to waterways include:

- Erect barriers to contain potential spills such as bunds, diversion drains or sumps.
- Provide spill control equipment, including containment booms or dispersants that are specific to waterways.
- Segregate all materials used to contain or handle chemicals and fuels.
- Use cleaning fluids that are suitable for watercourses.
- Washing down vehicles in bonded or sealed areas to protect underground water from fuel and oil contamination

Refer to QU HS-TG-01 Chemical Safety for further guidance on safe use of chemicals.

4.3.6 Water Quality Protection

The following is to be undertaken to protect water quality:

- Ensure a suitable spill kit is available if using plant or machinery that has the potential to pollute waterways.
- Monitor storm water quality to ensure the water is clear of sedimentation and other pollutants.
- Protect waterways from insect repellent as these can often be highly toxic to aquatic organisms.

4.3.7 Fauna / flora / biological communities

The following is to be considered in relation to fauna, flora and biological communities:

- Identify dangerous fauna that may be encountered in or near fresh and marine waterways such as reptiles, bears, herding animals, stingrays and jellyfish and take appropriate precautions. This may include considering the use of spotters to monitor and provide warning if dangerous fauna is sighted.
- Have appropriate preventative PPE and first aid facilities available.
- Take precautions to avoid contact with pathogens and carrier organisms such as mosquitos to reduce the risk of diseases associated with water including bilharzia, malaria and dengue fever.
- Ensure suitable wash down procedures are in place to prevent the spread of waterborne pests and diseases.
- Avoid disturbing or damaging threatened or sensitive biological communities.
- Identify and obtain approvals and licenses for water extraction or vegetation clearing as required by Qatar Ministry of Environment laws and regulations.

4.4 Rescue Process

All employees shall be trained in what to do in the event of an emergency.

All employees shall be trained in raising alarms, and regularly practice rescue drills

Persons providing water safety for working over water are to hold a current first aid certificate.

The rescue Process shall consist of:

- A set routine for raising the alarm;
- A set drill to provide rescue facilities; and
- A set routine for getting persons to hospital whether for check-up through immersion in water, or for treatment as the result of an injury.

4.5 Personal Protective Equipment (PPE)

QU shall ensure:

- All employees wear an appropriately fitting Type I or Type II rated PFD buoyancy aid when:
 - Entering running water, dams, creeks or ponds.
 - Operating in unfamiliar waters.
 - Undertaking activities in the water or on water vessels.
 - During bad weather or restricted visibility.
- All employees shall wear slip resistant footwear;
- Appropriate fall protection control measures are implemented; and
- Employees check their personal protective equipment is in working order before, during and after use.

4.6 Inspection and Maintenance

Routine inspections and maintenance of the vessel shall be carried out regularly and by a competent person and a record kept on file. QU shall ensure that protection systems are in place and in working condition. At a minimum, the following shall be covered:

- The vessel must be inspected on a regular basis before and after use to check critical safety equipment is in place before every passage, and file a record.
- Equipment manufacturer's instructions shall be incorporated into the inspection and preventive maintenance routine; and
- All working over water protection equipment shall be inspected prior to each use, and a documented inspection conducted at intervals not to exceed 6 months, or in accordance with the manufacturers guidelines.

5 Training

5.1 General Worker

QU shall provide a training program appropriate to ensure that all persons involved in working on, over or adjacent to water acquire the understanding, knowledge, and skills necessary for the safe performance of all duties.

Training is to be provided to exposed employees prior to assignment to jobs and shall include, at a minimum, the following:

- Types of protection equipment to be used at the site including:
 - Buoyancy aids; and
 - Either a fall restraint or fall arrest system;
 - Fall hazards associated with the work to be completed;
 - Procedures for removal of fall protection devices from service for repair or replacement;
 - Fall protection equipment identification methods;
 - Equipment maintenance and inspection requirements;
 - Equipment donning and doffing procedures, and opportunity for each employee to use the equipment in a field exercise; and
 - Equipment strengths and weight limitations.

QU shall ensure a competent first aider, trained in Cardiac Pulmonary Resuscitation (CPR) and familiar with both rescue and treatment of drowning, is always readily available on all activities involving working on, over or adjacent to water.

QU shall ensure:

- All employees are to be trained in raising alarms, and shall regularly practice rescue drills;
- Each person is trained in what to do in the event of an emergency; and
- Each person is trained in the rescue Process.

5.2 Qualified Worker

QU shall ensure persons providing water safety for working over water are to hold a current first aid certificate.

Refresher training shall be conducted when the employer has reason to believe that any affected employee who has already been trained does not have the understanding and skill required by this SOP. The training content shall be identical to initial training. Circumstances where retraining is required include, but are not limited to, the following conditions:

- Whenever (and prior to) a change in job assignment is made;
- When there is a change in the type of equipment used; or
- When a known hazard is added to the work environment.

QU shall conduct additional retraining whenever a periodic inspection reveals, or there is reason to believe, that there are deviations from implemented procedures.

6 Document Control

This SOP is a controlled document. The controlled version of this SOP is located on the QU HSS Documentation Management System.

Any printed copies of this controlled document are reference copies only. It is the responsibility of all of those with printed copies to ensure their copy is kept up to date.

Refer to *QU HSMS – Documented Information process*.

7 References

- *AS/NZS 2299.1:2007 Occupational diving operations - Standard operational practice.*
- *State of California, Department of Boating and Waterways, "Safe Boating Hints on Personal Flotation Devices."*
- *Transport Safety Victoria (Australia), Marine Safety, "Personal Flotation Device Buyers Guide."*