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Project Work Over or Near Water Procedure

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Project Work Over or Near Water Procedure

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Project Work Over or Near Water Procedure

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Project Work Over or Near Water Procedure

1.0 PURPOSE

This procedure provides the requirements necessary to ensure that all activities involving work over or adjacent to water is conducted in a safe manner.

2.0 SCOPE

The scope of this procedure applies to all works performed under all Government Construction Contracts executed throughout the Kingdom of Saudi Arabia.

3.0 DEFINITIONS

Definitions	Description
Cofferdam	A temporary dam-like structure constructed around an excavation to exclude water.
Lanyard	Means a rope, suitable for supporting one person. One end is fastened to a safety belt or harness and the other end is secured to a substantial object or a safety line.
Lifebuoys	A ring-shaped device that floats in water and that is used to keep a person from drowning
Lifeline	Means a rope, suitable for supporting one person, to which a lanyard or safety belt (or harness) is attached.
PFD (Personal Flotation Device)	Life jacket or life vest (but not a buoyancy aid). Designed to support an unconscious person face upwards. They are not designed to turn an unconscious person over who is in the face down position.
PVC	Abbreviation for polyvinyl chloride: a type of plastic
Skiff	A light rowing boat or sculling boat, typically for one person.
Vessel	Sip, boat, tug, barge, inflatable craft, etc.... that has a means of propulsion.
OSHA	Occupational Safety and Health Administration
CFR	Code of Federal Regulations
JHA	Job Hazard Analysis
WMS	Work Method Statement
PPE	Personal Protective Equipment
STARRT	Safe Task Analysis and Risk Reduction Talk

4.0 REFERENCES

- OSHA 29 CFR 1910.140 Personal fall protection systems
- OSHA 29 CFR 1926.104 Safety belts, lifelines and lanyards.
- OSHA 29 CFR 1926.105 Safety nets
- OSHA 29 CFR 1926.106 Working over or near water
- EPM-KSS-PR-000003 Project Personal Protective Equipment Procedure.
- EPM-KSS-PR-000010 Project Night Works Procedure.
- EPM-KSS-PR-000033 Project Scaffolding Control Management Procedure.

5.0 RESPONSIBILITIES

5.1 Project Manager

Is responsible for providing accurate information concerning the physical environment, permits and licenses required, and geological conditions.

5.2 Contractors/Sub-Contractors



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The following points will assist Contractor/Sub-contractors on their responsibilities when working over or near water:

- Conduct risk assessments and prepare work method statements, if necessary, and obtain approval from the Superintendent or Engineer in charge of the work.
- Prepare and submit an application for any work permits or licenses.
- Program the work in order to ensure maximum protection of the environment.
- Provide equipment that is safe, well maintained and is certified for use on the project.
- Provide adequate barriers, flashing lights, and signs for the work. Equipment should be delivered to the area site before work starts.
- Conduct a Pre-start meeting with personnel on the safe working practices required for the work to be performed.
- Employ a competent person whom shall check daily or before use, lifesaving and protective equipment, navigation and warning lights.
- Notify a Supervisor regarding any environmental contamination discovered during the work.
- Provide adequate emergency response capabilities and rescue services to handle any eventualities.
- Ensure that mechanisms for controlling personnel working over water are in place.
- Provide suitable protective equipment and clothing to their employees and their visitors to carry out the work in a safe manner.
- Communicate the requirements of the work method statements and permit to all their employees
- Ensure that all personnel they employ are fit and competent to do the work safely.
- Train and allocate sufficient personnel to act in a standby function with duties for monitoring the work activity in case of emergencies.
- Observe and comply with all the rules, regulations and requirements of local ports, authorities, customs regulations, and all such requirements of the state and/or governmental agencies.

5.3 Superintendents

Superintendents and/or Engineers in charge of the work shall carry out the following activities:

- Review information provided by the project manager, client, or owner.
- Prior to the start of any marine operations, conduct a Risk Assessment of the area to identify any site-specific hazards and pass this information to the Contractor(s), when applicable.
- Identify the presence of any obstructions.
- Inspect plant and equipment to be used.
- Identify the need for any permits that are required in the area and arrange for them.
- Brief the Subcontractor carrying out the work of any adjacent operations that may impact on the work.
- Review the subcontractor's Job Hazard Analysis (JHA) or Method Statement (as applicable) for completeness.

6.0 PLANNING

Contractors must comply with all rules, regulations and requirements of local port authorities, customs regulations and all such requirements of government agencies, this may include acquiring all relevant permits where applicable.

The contractor/subcontractor executing the work must prepare a plan to mitigate the job hazards, the following topics must be addressed during the planning phase of all operations near or over water:

- Electricity
- Impact of wind speeds on scaffolds, man-lifts and lifting operations Wave height
- Tides and current
- Weather conditions
- Marine traffic
- Mooring and embarkation / disembarkation Loading / unloading operations of ships



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- Port lifting operations, and Contractor's own lifting operations
- Hot works, flammable and combustible liquids.
- Confined spaces
- Emergency response
- Fall protection
- Swimming capabilities of workforce Working platforms & access Marine electrical wiring
- Spill reporting and clean-up.

7.0 RISK ASSESSMENTS

Risk assessments must be conducted at the planning stage under the following headings, and generic JHA or method statements (as applicable) produced:

- Environmental Impact Assessment and Controls
- The Physical Environment – Assess Impact of Climate/weather (e.g., prevailing winds, icing conditions, fog, etc.), Wave height, Tides and current, and other associated risks.
- Existing Marine Traffic and Collision Prevention.
- Work Stoppage Requirements list conditions that will lead to work stoppage, such as but not limited to: Wave height in excess of 1m. Inclement weather (lightning storms, pending cyclonic disturbances, snow/ice conditions, etc.) Medical emergencies.

An integral aspect of the work planning process is the performance of a proper risk assessment. Risk Assessments must be conducted at the Planning Stage to identify the hazard risks and determine control measures.

The Risk Assessments that shall be conducted at the Planning Stage are as follows:

- Project Risk Assessment.
- Work Method Statements (WMS)
- Job Hazard Analysis (JHA).
- Safe Task Analysis and Risk Reduction Talk (STARRT)

It is imperative that prior to beginning any work activity, a STARRT briefing occurs to discuss the contents of the WMS/JHA which includes mitigations for any other hazards noted by the crew at the jobsite. The discussion shall also include job steps, expected hazards associated with the activity, and the mitigation and protection methods that shall be implemented to prevent incidents.

The Hierarchy of hazards control shall be used to reduce the likelihood of an incident occurring.

- **Elimination** (Remove the Hazard)
- **Substitution/Isolation** (Replacing material, process or hazard with a lower risk one/separate people from the hazard, use suitable guarding, distance, etc.)
- **Engineering Controls** (Redesign or replacement of plant and equipment)
- **Administration Controls** (Procedures, training, signage)
- **PPE - Personal Protective Equipment**

No work is to commence until the above has been implemented and signed by the relevant Supervisor in charge.

8.0 IMPLEMENTATION

The following requirements establish the criteria for an effective assessment program to ensure the safety of personnel and the environment when working over or near water:

- Dredging Operations shall be considered as a specialist one-off basis, with Contractor evaluation, qualifications, experience, dredging equipment, Environmental Impact Assessment, dredging technique to be used, mitigation measures for reducing silt disturbance and specific Method Statement and Safe Sequence of Work to be submitted for approval before work commences.



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- Contractor/subcontractor shall submit insurance inspection certificates for all vessel hulls, marine lifting equipment, pressure vessels, lifesaving equipment and fire protection systems when applicable
- Where practicable, a scaffold or working platform shall be used for working over water in accordance with EPM-KSS-PR-000033 Project Scaffolding Control Management Procedure.
- When working near or adjacent to water must be installed wherever a person may fall into water, and a risk of drowning is present. Lifebuoys or lifelines guardrails, fencing or barriers must be available. Where this is impracticable, personal flotation devices must be worn by all persons.
- A pre-task briefing must be given by the Supervisor on a daily basis for all working in, near or adjacent to water. Local rules, procedures, wearing of PPE and emergency arrangements are to be addressed.
- Dumping of all wastes, concrete, slurries, materials and waste water into the sea, lakes, ponds, waterways or canals is strictly prohibited.
- Contractor shall ensure that all applicable Environmental permits have been acquired for all discharges of water (including dewatering operations) into the marine environment.
- All construction plant located near or adjacent to water shall have drip trays or other adequate measures to prevent pollution.
- All equipment and external fuel tanks, hydraulic, lubrication and fuel hoses will be kept in good order and free from any leaks. All examples of damaged, worn or poorly maintained hose and connections must be immediately removed from service and repaired or replaced
- Adequate measures must be taken to ensure minimum disturbance to marine and wild life.
- Access walkways, steps, revetments, ladders and gangways must be maintained free from mud, seaweed, algae and any other materials likely to contribute to a slip hazard.
- Emergency routes must be clearly signposted and highlighted.
- Toolbox Talks on personal hygiene must be given by Contractor regularly to all employees that work in, on, near or adjacent to water.
- An adequate amount of lifebuoys / life rings must be clearly situated along the length of unprotected edge, no more than 50m apart. A lifeline constructed of material that is able to float shall be attached to the life ring, a minimum length of 30m.

8.1 Environmental Impact and Controls

To reduce the impact on aquatic ecology to lowest possible levels:

- Use an appropriate dredging technique to minimize the disturbance of sediment resulting in silting and the potential for releasing contaminants bound up in sediment.
- Prohibit the dumping of waste, concrete and wash water into the waterway.
- Develop methods of work to ensure silt and mud disturbance, particularly on incoming tides, is kept to a minimum.

When work must be scheduled during migratory season, measures shall be taken to protect migratory fish movements in estuaries.

- Develop plant maintenance, deck washing and refueling protocols to ensure the risk of pollution is as low as is reasonably achievable.
- Reduce noise generated by materials handling, dredging, heavy plant and machinery operations, piling and vibration, to a level as low as is reasonably achievable by shrouding, screening and duration. Where applicable, noise levels must be maintained below established limits.
- Site lighting must be arranged to prevent interference to shipping and navigation, and light pollution and nuisance on shore.
- During dredging operations, analyze uprisings from harbors for heavy metals and oil sludge.
- Disposal of dredging materials at sea will require a license from the appropriate government agency.

8.2 Physical Environment

The impact of various elements of the physical environment on the working conditions shall be assessed to properly understand and prepare for all potential conditions. These may include the following:



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- High wind speeds that could adversely affect the integrity of scaffolds, lifting operations, temporary structures and the safety of personnel.
- Daily meteorological reports and direct contact with the local meteorological authority/office personnel is essential.
- Arrangements must be made to control icing on structures, walkways, vessel decks, and companionways.
- As necessary and in compliance with applicable maritime law, fog-warning devices should be installed. Consideration must be given when operating in inshore waters, harbor's, and estuaries regarding nuisance noise and lights.
- Essential historical information concerning tidal range, wave height, tidal surge (bores), and currents will determine methods for:
 - o Mooring floating craft
 - o Height of temporary platforms
 - o Specification and characteristics of rescue craft
 - o Emergency rescue equipment
 - o Landing platforms
- Access walkways, steps, revetment, ladders and gangways must be maintained free from mud, seaweed, algae, and slime as far as is reasonably practical.
- Consideration of emergency requirements, signposts, and provision of adequate lighting.

9.0 OPERATIONAL REQUIREMENTS

9.1 General Safety Instructions

The following requirements establish the criteria for an effective assessment program to ensure the safety of personnel and the environment when working over or near water:

- All personnel will be subject to Pre-start meetings prior to working on or in the vicinity of water, explaining the rules and procedures required.
- Fishing will be a prohibited activity and suitable warning signs shall be erected to ensure that all personnel are aware of this restriction.
- An adequate quantity of approved fire extinguishers, shall be provided at site. These shall be periodically checked, inspected and tagged as to inspection date, actions taken etc., and a log maintained of such inspections.
- All vessels will carry adequate and suitable lifesaving equipment, fire extinguishers and communications equipment and lighting appropriate to the class of vessel.
- Contractor will be required to submit insurance inspection certificates for all vessel hulls, lifting equipment and lifting gear, pressure vessels, fire protection systems and lifesaving equipment.
- All marine plant must be fit for purpose, properly maintained and safe to use.
- All personnel will wear an appropriate and approved lifejacket or buoyancy aid or personal floatation device when required. See Section 9.2 for additional information and requirements.
- All hydraulic, lubrication, and fuel hoses will be kept in good order, free from abrasion and unions tight and free from leaks. Any damaged, worn, poorly maintained hoses and connections must be immediately removed from service and replaced or repaired.
- Spill kits or proprietary absorbent materials must be provided on board for use in the event of a spillage. Contractor must ensure that workers are sufficiently trained in their use.
- There shall be a rescue vessel on standby for all work on, in, near or adjacent to water, which must be operated by a competent person experienced in operating a small boat in flowing water, the crew trained in emergency rescue, and be equipped with boat hook, grab lines or similar to assist in recovering a person from the water.
- All vessels must be annually 3rd party certified fit for purpose, properly maintained and safe to use. Vessels will clearly display the maximum number of passengers it can carry, and this number must never be exceeded.
- Wherever possible, embarkation and disembarkation from vessels must be carried out at purpose built jetties.



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- Access and egress from vessel to vessel, vessel to shore, or vessel to pier leg, or any other marine structure coming out of the water, must be via a correctly designed, well maintained, fit for purpose gangway fitted with guardrails and toe-boards or a rope ladder with wooden steps. Knotted ropes, fenders, suspended tires, wooden planks or any other temporary inadequate measure is strictly prohibited.
- All barge crane 3rd party test certificates must be applicable to barge lifting operations; tests conducted on land shall not be valid. The test certificate must state at what point lifting operations must cease due to environmental conditions (i.e. wind speed, current speed or wave height)
- Personal flotation devices issued to welders shall be complete with spark-proof covers.
- Personal flotation devices shall be fitted with water reactant lights when night work has been approved by the project management.
- Contractor shall ensure written approval is sought for all sand blasting and paint spraying activities from the Port Authorities when those works are undertaken in the Port areas.
- Site lighting must be arranged to prevent interference to shipping and navigation.
- Contractor must co-ordinate with the meteorological authority for all work in ports.

9.2 Life Saving Equipment

The following equipment shall be supplied and installed as a minimum:

- Lifebuoys must be positioned at regular intervals (not more than 50m during the construction phase).
- Prior to and after each use, the buoyant work vests or life preservers shall be inspected for defects which would alter their strength or buoyancy. Defective units shall not be used.
- Lifebuoys provided will be either cork interior with canvas covering or polyurethane foam with rigid PVC covering.
- At least one lifesaving skiff shall be immediately available at locations where employees are working over or adjacent to water.
- A lifeline constructed of material that is able to float shall be attached to the lifebuoys. It should be of a minimum length of 30 m.
- The height of the buoy on a revetment, wall or working platforms, will fluctuate with the tide. The length of the lifeline should therefore accommodate the tidal movement.
- Where there is a fast flowing current, either river or tidal, then smoke flares should be located adjacent to lifebuoys.
- A sufficient number of lifejackets or approved buoyancy aids shall be provided for all personnel and visitors.
- Lifejackets and buoyancy aids provided shall be to the following specification:
 - o Allow for freedom of movement when worn.
 - o Be easily secured.
 - o Have a high visibility covering.
 - o Fitted with spark proof covers for welders.
 - o Require minimum maintenance.
 - o Be fitted with self- igniting lights (for night shift workers).

All personnel must wear an appropriate and approved personal flotation device when working at:

- From the deck of any barge or raft.
- When boarding or disembarking vessels using rope ladders or temporary gangways.
- When on board vessels to and from shore locations.
- When working on any area of a vessel, jetty, quay wall, means of access, sea-water cooling canal, revetment, jack-up rig, raft or barge that is not fully enclosed by a permanent barricade / fence or working platform guardrail requirements.

9.3 Drilling Operations

- The drilling contractor will conduct a risk assessment(s) to identify site-specific hazards and risks.
- The drilling contractor will prepare a JHA or method statement(s), as applicable, for drilling activity.
- The plant and equipment used will be fit for purpose, properly maintained and safe to use.



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- Before work is allowed to start, the drilling contractor will produce a noise chart for the equipment.
- Suitable safe access will be provided on the drill mast and operators will wear and attach a full body harness for all work on the mast.
- All personnel will wear an appropriate and approved lifejacket or buoyancy aid when working from the deck of a barge, above or adjacent to water.
- All winches, hoists, and lifting gear will be inspected and an Inspection/Test certificate for each item will be made available for inspection.
- All hydraulic, lubrication, and fuel hoses will be in good order, free from abrasion and unions tight and free from leaks.
- Maintenance procedures for the drilling equipment shall include refuelling, hydraulic oil and lubrication oil change, and methods to prevent pollution.
- Environmental protection and spillage control material will be available at all times on the drilling rig.

9.4 Dredging Operations

- The dredging contractor shall conduct a risk assessment/s to identify site-specific hazards and risks.
- The dredging contractor shall prepare a JHA or method statement(s), as applicable, for dredging activity to include mitigation measures for reducing silt disturbance.
- The JHA or method statement shall list the equipment to be used, the number of vessels including, if appropriate, the number of barges and tender vessels.
- The JHA or method statement will contain a noise chart to include noise levels during maneuvering, dredging and dumping into barges.
- The dredging contractors will be required to submit insurance inspection certificates for all vessel hulls, lifting equipment and lifting gear, pressure vessels, fire protection systems and lifesaving equipment.
- All winches, hoists and lifting gear will be inspected and an Inspection/Test certificate for each item will be made available for inspection.
- Suitable safe access will be to all provided parts of the dredging equipment and operators will wear and attach full body harness for all work on the equipment above deck level.
- All personnel will wear an appropriate and approved lifejacket or buoyancy aid when working from the deck of a barge, above or adjacent to water including personnel transport to and from shore.
- All hydraulic, lubrication, and fuel hoses will be in good order, free from abrasion and unions tight and free from leaks.
- Maintenance procedures for the vessels and dredging equipment shall include refueling, hydraulic oil, and lubrication oil change, and methods to prevent pollution.
- Environmental protection and spillage control material will be available at all times on the dredger.

9.5 Piling Operations

- The piling contractor shall conduct a specific risk assessment to identify site hazards and risks.as applicable, for piling activity.
- The JHA or method statement shall list the equipment to be used, the number of vessels including, if appropriate, the number of barges and tender vessels.
- The JHA or method statement will contain a noise chart to include noise levels during maneuvering, pile pitching, and driving. The JHA or method statement will explain what noise mitigation measures will be employed to comply with the clients agreed noise levels or licenses
- The piling contractors will be required to submit insurance inspection certificates for all vessel hulls, lifting equipment and lifting gear, pressure vessels, fire protection systems and lifesaving equipment.
- All winches, hoists, and lifting gear will be inspected and an Inspection/Test certificate for each item will be made available for inspection.
- Suitable safe access will be provided to all parts of the piling equipment and pile gates, and operators will wear and attach full body harness for all work on the equipment above deck level.
- All personnel will wear an appropriate and approved lifejacket or buoyancy aid when working from the deck of a barge, above or adjacent to water including personnel transport to and from shore.



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- All hydraulic, lubrication, and fuel hoses will be in good order, free from abrasion and unions tight and free from leaks.
- Maintenance procedures for the vessels and piling equipment shall include refueling, hydraulic oil, and lubrication oil change and methods to prevent pollution.
- Environmental protection and spillage control material will be available at all times on the piling rig.

9.6 Mooring Operation – Jetty Facilities

- Contractor must designate a team of trained, identifiable individuals to participate in mooring operations, for both day and night shift activities where appropriate. This team must be available at all times when mooring operations are ongoing.
- Contractor must develop procedures addressing all issues likely to affect mooring activities including different types of craft, inclement weather conditions, the correct means of securing vessels and means of access for plant and personnel.
- Contractor must ensure that mooring ropes are regularly inspected for fraying, abrasion, damage or disintegration, at a minimum quarterly. Any mooring ropes showing any signs of damage must be immediately removed from use.
- Bollards must be suitably designed to ensure ropes are not subject to unnecessary wear and tear and that suitable access is provided around the bollard for workers involved in mooring activities.
- Jetty & mooring facilities will be designed to ensure safe access and egress and keep non-trained individuals away from at risk areas. Fencing must be installed to demarcate areas where operatives are to undertake mooring operations.
- Worksite lighting must sufficiently illuminate all worksite activities in the Jetty area. Workers must not operate in shadows.
- Contractor must ensure that access ramps and bridges are well maintained and fit for purpose, and shall utilize a system for raising and lowering access ramps/bridges that ensures workers remain on shore side locations and are isolated from fall hazards and pinch points.
- All jetties where personnel may disembark shall have suitable fenders of 30cm in width to provide a rescue zone should workers fall in between vessel and jetty. If the gap between two vessels moored side by side is greater than 30cm, then adequate approved means of transfer shall be provided - Approved gangway with stanchions and with toe board, mid and upper rails or three courses of rails.
 - o Maintaining three-point contact is of prime importance.
 - o Use of alcohol or drugs is to be strictly prohibited.
 - o Buddy system shall be followed.
 - o Transfer shall take place only when Captains or persons in-charge of each vessel have given the approval to transfer.
 - o Each location/situation may call for additional precautions/safeguards to be taken/provided.

As a *general rule*, personnel are prohibited from transferring between two non-personnel vessels i.e. rock barges. Non-personnel vessels should not be moored together.

9.7 Tenders, Work Boats and Passenger Ferries

- The contractor will ensure that tenders, work boats and passenger carrying vessels are fit for purpose, designed, maintained and operated to ensure there is no risk to employees in their use.
- All vessels will carry adequate and suitable lifesaving equipment, fire extinguishers and communications equipment and lighting appropriate to the class of vessel.
- Passenger carrying vessels will display a plaque indicating the maximum number of passengers it can carry. This number must never be exceeded. Passenger carrying vessels will carry a copy of the license stating the class of vessel and a copy of the insurance certificate.

9.7.1 Emergency Procedures – Rescue Preplan

- A windsock should be positioned in an exposed and obvious location in order to indicate speed and direction of the wind.



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- Contractors will form a marine rescue steering group to determine protocols and mutual aid for marine emergencies.
- The steering group will agree on an emergency pre-plan to include, but not limited to, the following:
 - o Conducting of a joint risk assessment
 - o Command and control structure
 - o Emergency communications
 - o Trained first aid responders and equipment on vessels
 - o Man overboard rescue
 - o Rescue of injured persons from vessels and barges.
 - o Provision of rescue craft. This may be a separate sub-contract.
 - o Rescue aids – rat-lines, nets.
 - o Use of flares or other signals in the event of radio failure.
 - o Casualty handling and equipment for recovery from water.
 - o Request for the emergency rescue services.
 - o Exercises and drills.

9.7.2 Emergency Procedures – Rescue Vessel

Contractual arrangements will be made with a reputable company for providing an emergency rescue vessel, or projects shall furnish their own such vessel. The following requirements shall be documented and verified:

- The sea worthiness of the vessel(s) and overall condition, including age, maintenance records and registration.
- The vessel's suitability for rescue service (e.g., emergency boarding facilities, speed and maneuverability, etc.).
- The competency and experience of its crew, including a trained first-aid responder.
- The provision of a backup vessel in the event of damage or failure.
- The equipment on board the vessel is to include grappling hooks, Life buoys, first aid equipment and accommodation.

9.8 Security and Public Protection

It is important to ensure that only authorized personnel are allowed in an area where water is present, and that suitable arrangements are in place, in order to ensure that all personnel are accounted for, follow the below recommendations:

- Security guards should be assigned to patrol these areas and prevent unauthorized access.
- Where practical, fences should be erected around construction areas and warning notices in the appropriate languages displayed, particularly where the profile of beaches, revetments, promenades and piers have been altered temporarily.
- Proactive public or community affairs campaign and promotion will inform the public of site activities and the dangers.
- The subcontractor is responsible for the work and will therefore make the following arrangements:
 - o Establish a control point and staff to administer the procedure for controlling access and egress to the working area. Establish a procedure for allowing personnel into the area by the exchange of ID cards, for example (such protocol to be established on site).
 - o Set up a muster point in the event of an emergency.
 - o Contractor shall include procedures for installation of marine exclusion zones in the vicinity of the site, where applicable. The procedure is to include appropriate notice to mariners in cooperation with the local marine authorities, with regular reviews and updates. The procedure will also include the requirement for the placement of boundary markers in the form of buoys and implementation of courtesy patrols to intercept unauthorized vessels i.e. members of the public.



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9.9 Night Shift

When working at night other hazards are present that require attention. Illumination is essential for night working. The following shall apply:

- An assessment should be conducted to identify the level of lighting required.
- Lighting must be positioned not to interfere with shipping and navigation or create light pollution to the public.
- Tender and work boat skippers must be instructed not to direct search lights onto public roadways or houses in residential areas.
- Employees must not work alone at night. Employees must wear hi-visibility clothing fitted with reflective banding or tape.
- Lifejackets and buoyancy aids will be fitted with water reactant lights (i.e., McMurdo type or equivalent).

Refer to EPM-KSS-PR-000010 Project Night Works Procedure for information regarding lighting.

9.10 Embarkation – Disembarkation

Significant risks are posed during the transfer of workers/passengers from vessel to vessel, or from vessel to shore.

- Wherever possible, disembarkation must be carried out at purpose built personnel jetties. Where this is not possible, additional risk assessments must be conducted prior to work continuing.
- Inductions must be given to all individuals going on board vessels for the first time covering the correct procedure for embarkation/disembarkation and the emergency response measures to be initiated in the event of an incident.
- Contractors must ensure that workers are subjected to regular briefings by way of toolbox talks, pre-task briefings detailing the correct procedure for accessing / disembarking from vessels.
- Access must be via a correctly designed, well maintained, fit for purpose rope ladder with wooden steps, or gangway fitted with toe boards and mid and top rails. Knotted ropes, fenders, suspended tires, wooden planks, or other temporary measures must not be used under any circumstances.
- Workers must wear a correctly fitting personal floatation device at all times when embarking/disembarking from vessels.
- All crew members must remain together at all times during disembarkation to assist each other in the process.
- Workers must ensure that they have both hands free when using rope ladders to access vessels. The carrying of satchels or shoulder bags (such as laptop bags) is prohibited as these may shift position and cause an unbalance. Materials should be passed to workers who have previously carried out the embarkation/disembarkation maneuver, especially if using rope ladders.
- When transferring between two vessels, barges or marine structures, Contractor must ensure that fenders or other separation devices are installed to maintain a sufficient gap to prevent crushing of anyone that falls between two moored vessels. A minimum gap of 50cm must be maintained.
- Contractor must initiate and train workers in an embarkation/disembarkation emergency plan detailing actions to be taken in the event of a man overboard incident.
- Contractor must designate a suitably qualified individual to act as a mooring/crew change supervisor responsible for ensuring the safety of crew members during the crew change.

9.11 Cofferdams

- Cofferdams must be designed by a qualified, professional civil engineer. All calculations and the design drawing(s) must be included with a Safe Sequence of Work in the Constructability Plan. The above conditions that are applicable in this procedure must be met.
- Cofferdams must be inspected before any person carries out any work at the start of every shift, and after any event likely to affect the strength or stability of the cofferdam.
- If overtopping of the cofferdam by high waters is possible, means must be provided for controlled dewatering of the area.



Project Work Over or Near Water Procedure

- A cofferdam shall have a minimum of two means of access and egress. All means of access shall be provided with handrails, mid-rails and toe-boards.
- Warning signals for the evacuation of employees in the case of an emergency shall be developed and posted.



Project Work Over or Near Water Procedure

10.0 TRAINING

Contractor shall conduct an emergency rescue training exercises on a regular basis as required by task. At a minimum an exercise is to be conducted on a quarterly basis covering:

- Man overboard rescue.
- Rescue of injured persons from a vessel.
- Casualty handling.
- Induction training must be given to all individuals going on board vessels for the first time covering the correct procedure for embarkation / disembarkation and emergency procedures in the event of an incident.
- All documentation relating to training must be kept and made available upon request.

11.0 ATTACHMENTS

N/A