

The diving operations shall be conducted from a mobile dive truck fully equipped for two divers working. The HSE Approved Code of Practice that applies to the diving operation is L104

General Safety

- Hi-visibility jackets/vests, hard hats, overalls and safety boots will be worn at all times as a minimum, eye protection, hearing protection & gloves will be worn when required and life jackets to be worn at all times when working on the quayside, under the quayside or on any floating plant
- All personnel employed or subcontracted on the project shall be qualified and experienced in this type of marine operation. They will be aware that safety is the responsibility of everyone in the team; no provision has been made for the use of trainees or young persons on this contract.
- Access & Egress to job site identified and agreed before commencing works
- Shipping movements in the area will represent the biggest hazard. As a minimum the diving supervisor shall be in contact by Marine Band VHF radio to the nearby shipping plus a visual sign that can be easily identified and is a clear signal that work is being undertaken. This shall be the Alpha flag which shall be hoisted when work is taking place. The flag shall be taken down when work stops.
- The Dive Supervisor will carry out pre dive checks of all diving equipment ensuring that they are of good condition and are operating correctly before diving commences
- Diver to be in constant contact with Dive Supervisor by remote speaker using hard wire comms boxes, this will allow the diving supervisor to listen to the divers commands and breathing patterns.
- Diving operations shall be ceased immediately if there is a loss of communications, rope signals shall be used to allow safe recovery of the diver.
- The dive supervisor shall inform the diver of any passing shipping as underwater it is difficult to establish direction or distance of ships passing.
- Monitoring of vessel movements and underwater conditions is essential to allow adequate time to remove diver from water. This will require close communications.
- Good communications will be the key to a safe and efficient operation.
- At no time will there be any load above the diver or any person.
- Dive supervisor to pay special attention to tidal conditions, shipping, visibility, weather etc and to prepare/amend dive plan as necessary.
- No hazardous substances shall be used on the site.
- Only trained operator to use machinery

METHOD STATEMENT & RISK ASSESSMENT

Method

Divers will operate using Surface Demand equipment with a main supply of air from an LP Diving Compressor. HP storage cylinders will be on-line as an emergency back up to the LP. These cylinders will be checked as part of the pre-dive checklist. All HP bottles will be filled from a dedicated offsite HP compressor when they contain less than 180 bars. All Divers will also carry an emergency air supply in their Arvests connected to their Diving Helmets. The divers will be in constant hardwire communication with the Supervisor, with the provision of a dedicated separate communications box in the dive station.

After the pre dive checks are done, the diver shall get into the water on say of the Dive Supervisor once the Alpha flag is hoisted and that it is clear that no vessels pose any danger to diving operations

Diver to be in constant contact with dive supervisor at all times by the way of remote speaker.

Diving operations shall be ceased immediately if there is a loss of communications

The dive supervisor shall inform the diver of any passing shipping and inform him if he is required to move.

Monitoring of vessel movements and underwater conditions is essential to allow adequate time to remove diver from water.

Supervisor should be aware of shipping movements and direction of water flow at all times to in case any person falls into sea.

At no time will there be any load over the diver

Works will involve sinking an overflow pipe using Ocean Kinetics workboat.

Workboat will be shut down when diver is getting into the water

Concrete matts will be fitted over the pipe using a crane. Lift Plan in place

The diver will guide the crane into the correct position. Crane operator will take directions from the dive supervisor only.

The diver will then maintain a safe distance initially while the concrete matts are lowered in to the water

The diver will then secure the concrete matts over the pipe

The diver will check the position of the pipe at all times

GENERAL METHOD STATEMENT FOR DIVING

- Diving supervisor to be in direct communications with Harbour Master and / or Vessel Masters
- No entry into water without clearance from Harbour Master and Vessel Masters
- All diving procedures and equipment to be in accordance with the current HSE guidelines.
- Vessels close by engines and suction / discharge to be secured.
- Entry to the water by personnel basket or fixed ladder.
- No suspended objects to be over diver at any time.
- Diver to have full hardwire communications with diving supervisor at all times.

GENERAL METHOD STATEMENT FOR WORKING ABOVE WATER OR ON FLOATING VESSELS.

- All personnel to wear suitable buoyancy aids at all times.
- No suspended loads to be over workers at any time.
- All work to be carried out from fully certified basket / lifting frame or suitable floating platform.
- Special care to be exercised due to the possibility of entrapment between quay and floating plant
- Use of power tools to be air, hydraulic or 110volt electric.
- All welding equipment to be fully tested and properly earthed.

Job No.						Assessor Sign:					
Job Description						References: COSHH. etc					
Sink Overflow Pipe & Fit Concrete Mats											
Competencies Reqd.:											
Hazard	Hazard effect	Risk evaluation			Control Measures required	Action		Residual			Result
Use checklist as guide	Type of Injury	Refer to APP			Include existing and	Person Responsible	Date	Refer to APP			Y / N
	Damage/Env. Impact	L	S	R	Proposed		Comp.	L	S	R	Result
Use of Lifting Devices	Falling parts may land on operator or assistant. Personnel injury possible	6	6	36	Tested lifting equipment, trained operators only. PPE to be worn. Diver to be in constant contact with the dive supervisor who will be in constant contact with the crane operator	Operator	Before work starts	2	4	8	AC
Manual Lifting	Lifting items too heavy or incorrectly. Back injury, muscle injury	6	6	36	Plan lift before hand and use two people if required. If in doubt do not lift. Ensure adequate PPE is available and used at all times. All employees on site to be trained in manual handling. Proper manual handling procedure to be used.	Operator	Before work starts	4	2	8	AC
Working Near or Over Water	Drowning or hypothermia	4	8	32	All personnel to wear lifejackets while working over or near water. Ensure means of exit from water. Life ring to be close by. Standby diver available at all times to recover injured person	Operator	Before work starts	2	4	8	AC
Risk from Pressure	Gas cylinders falling over, burst hose. Pressure injury or explosion causing personal injury. Compressed air in dive trailer.	4	8	32	Secure all cylinders hoses to be checked for damage and kept clear of heat or sharp objects. All pressure hoses to have safety lanyards fitted. All compressors to have relevant up to date safety certificate.	Operator	Before work starts	2	4	8	AC
Unprotected quay edges	Sever injury, drowning, death	4	8	32	All personnel to wear lifejackets when working near quay edges, Ocean Kinetics to put up barriers along edges to prevent falls within the area we are working	Dive Supervisor	Before work starts	2	4	8	AC

Inadequate First Aid Equipment	Diver or surface worker having injury with insufficient first aid equipment available.	4	4	16	Ensure that First aid equipment is on board pier as per HSE guidelines.	Dive Supervisor	Before work starts	2	1	2	T
Vessel Movement	Passing shipping could entangle diver. Vessel movement may create suction to diver or crush injury	8	6	48	Full communications with Port Control at all times to ensure they are fully aware when a diver is in the water. Warning signs to be erected. VHF to be used for direct communications to the ships. All appropriate telephone numbers to be made available at the dive site.	Diving supervisor	Before work starts	2	4	8	AC
Shallow Diving	Risk of drowning or diver related disease. Limited headroom under quay.	2	10	20	Follow diving procedures and only use competent, qualified divers. Close liaison with Port Control to ensure dive supervisor is aware of all harbour traffic and operations. Divers to wear diving helmet, no band masks.	Diving supervisor and operator	Before work starts	1	4	4	AC
Diver In gestation of contaminated water and biological contamination	Legion Ella, Hepatitis B	2	6	12	Proper use of PPE. Seek medical help. Diving helmet to be used rather than mask. Only the divers hands will get wet, gloves to be worn.	Diving supervisor and operator	Before work starts	1	1	1	T
Suction Pumps and unscheduled movements of thrusters and propellers	Diver fatality or severe injury,	6	8	48	Ensure no diver is in the water if any shipping can enter the operational area.	Dive Supervisor	Before work starts	1	6	6	AC
Vehicle movements on the quay and adjacent areas	Being run over, crushed, severe injury.	6	8	48	Ensure barriers are placed in correct position.	Diving supervisor and operator	Before work starts	1	6	6	AC

Diver and Umbilical Entanglement.	Diver becoming trapped, hypothermia, loss of breathing air, diver being dragged into place of danger by umbilical.	4	10	40	Care to be taken by diver to ensure that they do not become entangled especially when leaving basket. Tender to ensure that the umbilical is kept tidy and not left too long. Plan entry and exit to ensure umbilical is kept clear. Diver shall take care not to become entangled.	Diving supervisor, diver and tender	During operations	3	1	3	T
Working Adjacent to Existing Services on WDQ	Explosion, electrocution, danger from gas.	4	10	40	All personnel should be aware of the location of the services; this must be included in the toolbox talk. If there is a risk from any of them then the work location should be moved or barriers put in place to give adequate protection.	Diving supervisor, diver and tender	Before work starts and during operations	3	1	3	T
Exposure to noise and vibration	Short term and long term hearing damage. Loss of communications or distraction due to high noise levels. Nuisance in the environment.	6	4	24	Reduce noise at source, and release gas slowly. Wear PPE. .Anti-vibration gloves to be worn when operating vibration equipment. Regular breaks to be taken when operating vibration equipment. Workers to work a rota system to avoid exposure to loud and vibration equipment/plant. Vibration assessments to be carried out in accordance with Ocean Kinetics own policy	All personnel	Before work starts and during	1	4	4	AC
Valves opening or pumps starting.	Drowning or hypothermia, possible pressure injury	8	6	48	All valves and pumps isolated. Shetland Catch to ensure intake pipes are isolated	All personnel	Before work starts and during	2	4	8	AC
Poor sea conditions or wake from passing vessels.	Diver being forced against solid objects, uncomfortable working conditions, risk of finger or body entrapment due to sea movement	2	6	12	Diving supervisor to pay special attention to sea state and weather changes. If in doubt diver to be removed from water. Carry out deeper dives in poorer weather. Anticipate any wash from vessel and warn diver.	Diving supervisor	Before work starts and during operations	1	2	2	T
Slips, trips and falls	Injury slips, trips and falls on the quay side	6	6	36	Good housekeeping to avoid potential trip hazards, correct manual handling.	All personnel	Before work starts and during	1	4	4	AC

Air and Water Temperature	Consider heat as well as cold	6	4	24	Wear appropriate clothing under dry suits for divers and overalls for surface support	All personnel	Before work starts and during	1	4	4	AC
Failure of lifting equipment	Severe personal injury due to sudden movement of load	A	M	12	Ensure pre use checks and regular daily maintenance. Only trained operators to use lifting equipment	Dive Supervisor	N/A	D	L	2	
Working in a relatively confined space under pier with low head room and numerous items that could cause entanglement	Entanglement of diver or surface personnel, injury through collision, disorientation	4	10	40	Diver shall always wear full head protection. Tender to look after the umbilical and standby diver should be in immediate readiness at all times	Operator	Before work starts and during operations	3	1	3	T
Use of vessels	Injury from propeller. Diver injury from vessel movement. Entrapment between vessel and tidal generator	4	8	32	Vessels to be moored with engines off prior to diving, no diving when vessels are underway. Display "A" flag & notify vessels of diving operations, dive supervisor to notify when local vessel movements may cause wash	All personnel	Before work starts and during operations	2	4	8	AC
Air Emissions Particle matter and / or dust. Fumes. Carbon monoxide fumes	Damage to health. Damage to health, pollution of air. Damage to healthy, extreme risk to diver.	5	3	15	Control all grinding and cutting; ensure all plant is well maintained. Plant to be maintained, do not cut or weld coated materials. Service plant effectively, reduce petrol engine use, ensure discharge is downwind of any air intakes.	All personnel	Before work starts and during.	1 2 1	4 4 4	4 8 4	AC AC AC
Discharges to Water Release of hydrocarbons and other pollutants.	Damage to aquatic life, unsightly and fire hazard	5	3	15	Do not spill liquids, bunded tanks, drip trays, spill kits available. Clean any liquids immediately.	All personnel.	Before and during works	1	3	3	T
Land Contamination Release of substance into ground.	Damage to land, plants, animals etc.	5	3	15	Do not spill liquids, bunded tanks, drip trays, spill kits available. Clean any liquids immediately.	All personnel.	Before and during works	1	3	3	T

Energy and Utilities. Over use of natural resources	Depletion of natural resources	5	2	10	Use minimum of natural resources, switch off machines, auto idle, reduce wastage and recycle spent materials.	All personnel.	Before and during works	4	2	8	AC
Waste Production of waste on site	Waste on site, packaging, messy if left.	5	2	10	Reduce materials on site, re-use where possible. Only landfill as a last resort, re-cycle steel.	All personnel.	Before and during works	3	2	6	AC
General comments: - Diving Supervisor to have overall control and can stop work at any time.											

EMERGENCY PROCEDURE

Emergency Procedure to Recover Injured Diver

In the event of a trapped diver or any event where the diver requires assistance the following procedure will be followed:

- All personnel will assist in recovery of diver.
- Notify emergency services by mobile phone.
- Establish communications quickly with the injured diver, if this is possible and the diver is capable follow the normal diver recovery procedure.
- If the diver is trapped or injured in such a way that he cannot be safely recovered then the standby diver must assist. He shall have his equipment in immediate readiness and after donning his equipment and carrying out his pre dive checks enter the water and follow casualty diver's umbilical until he reaches the diver.
- Diver to be recovered into safety boat by way of Jacobs ladder
- Diver to be taken in safety boat to low point of access i.e. pontoon or slip, pre-organised before dive starts.
- The dive tender assisting by pulling in slack umbilical and pulling when asked to by either diver. Any decompression sickness is unlikely but there may be the possibility of AGE which may require recompression.
- An assessment of the casualty should be then made of the casualty. CPR may be required and must be administered quickly and efficiently. If AGE is suspected then the casualty should be laid flat on the floor with his feet elevated and given pure oxygen, the casualty must then be transferred immediately to the local hospital where recompression facilities are available. If a diving doctor is not available at the facilities the casualty should be recompressed until the symptoms disappear and a diving doctor should then be contacted by phone to advise the local doctors on a suitable treatment.

Tool Box Talks

The Dive supervisor will deliver toolbox talks to all operatives on the works. The talks will be specific to the site activities and will be held each morning prior to the commencement of the day's activities. Subjects will include all the items included in the risk assessment and method statement as well as the following general items: working over water, PPE, manual handling, mobile cranes/forklifts and site restrictions.

All personnel on the works must have read the method statement and risk assessment and signed the tool box talk sheet.

First Aid

There will be a minimum of one accredited first aider on site at any given time.

A first aid box will be kept within dive control. Emergency numbers shall be listed and kept by the telephone within the dive control.

Dive Supervisor

The dive supervisor will be responsible for ensuring the day to day compliance and management of health, safety and welfare on site. Also responsible for routine monitoring of activities during site works and ensuring that operatives and contractors are competent and have adequate training. The Dive Supervisor on this works will be Mr Roger Goudie.