Republic of Marshall Islands Maritime Investment Project

Occupational, Health and Safety Plan

Location:		Project No:	
Project Manager:		Date:	
Client Details:	Government of Republic of Marshall Islands and the World Bank Group	Company:	
Client Representative / Project Manager:			
Description of Works:	Republic of Marshall Islands Maritime Investment Project		
Site History:			

Site Features (tick if applicable)	☐ Ocean/ Lake / Water Course	☐ Underground pipelines sewerage, potable water)	☐ Remote site work	
	☐ Natural Disasters (flooding, cyclone, fire, etc)	☐ Impact from or to neighboring properties	☐ Public Access to site	
	☐ Overhead power lines, underground service cables (electrical / telephone)	☐ Subsidence / soil stability	☐ Construction	
		☐ Amenities/Toilets	☐ Working machinery	
	First aid facilities	☐ on site	☐ in vehicle	☐ on vessel
	☐ Other (specify)	.....		

Hazard Type	Risk: H - High M - Med L - Low	Control Measures: Refer to SWMS where appropriate. Specific site hazards to be detailed on this form.
Physical Hazards		
Noise (do you need to shout at 1m distance)		
Vibration		
Dust		
Lighting		
Electrical sources / electrical tags up to date		
Sharp objects		
Hot works being conducted (welding, grinding)		
Trenches / Excavations – do you need to do work in or near a trench or excavated area, or near a shored area)		
Confined spaces (tanks, silos, basements, service pits and trenches)		
Work at Elevation - Risk of falling from an elevated height (opening, roof, scaffolding, structure)		
Falling objects (potential for)		
Stationary / fixed plant items		
Service locating		
Soil sampling (inhalation of dirt, contaminated soil, blisters from auger)		
Vibration Exposure		
Compliance with Port Authority requirements		
Manual Handling (do you need to lift obscure shaped or heavy items)		
Inadequate safety controls		
Fuel / chemical spillage / Leakage		
Disturbance to contaminated land		
Waste Disposal		
Thievery / illegal activity.		
Driver Fatigue/ Car Accident		
Vehicle breakdown		
Hazardous road conditions		
Reduced visibility while driving		
Vehicle accident / equipment damage		
Vehicle stranding / vehicle damage		
Working near roadsides		

Boating hazards		
Underwater work		
Weather conditions		
Smoking		
Dangerous fauna / hazardous flora / vectors / bacteria		
Bites and scratches		
Marine creature attack.		
Spikes and scratches from plants		
UXO		
Slips / trips / falls		
Dehydration and sunstroke		
Hypothermia		
Working in wet conditions with inappropriate work PPE		
Working in extreme weather conditions		
Lack of communication in the event of an emergency; communication problems		
Working at night time		
Weed spread		
Inadequate first aid equipment / knowledge.		
Bushfire		
Working near water		
Manual handling		
Lack of communication to relevant parties		
Muscle strains		
Destruction to local environment caused by sampling/surveying activities		
Infrastructure damage		
Problems securing accommodation.		
Other (please specify)		

Biological Hazards:		
Exposure to zoonotic diseases through contact with faeces, urine, blood and saliva		
Snake or spider bites; insect stings; reactions to stinging plants; allergic reactions.		
Vector borne diseases eg Malaria		

Personal Protection Equipment (PPE) Level D equipment is standard and should be readily available. Assess job and PPE Level - tick appropriate PPE from within that level. Higher levels include the items in the levels below.		
☐ Level D (modify to suit project) ☐ Coveralls / cotton shirt (long sleeved) and pants ☐ Safety boots ☐ Safety glasses ☐ Hard hat / shade protector ☐ Dust mask ☐ Hearing protection ☐ Gloves (cotton, latex) ☐ High visibility vest Sunscreen ☐ Water ☐ Remote location communication ☐ Gattors ☐ Other	☐ Level C ☐ Coveralls / Tyvek suits (chemical resistant) ☐ ½ face or full faced respirator + cartridges ☐ Face shield ☐ Inner and outer gloves (Nitrile, PVC, cotton, latex)	☐ Level A or B ☐ Pressure demand full face-piece SCUBA – air supplied ☐ Chemical resistant clothing (level B), fully encapsulated suit. Inner and outer gloves (Nitrile PVC, cotton, latex)

Emergency Planning & Contacts	** Remember – incidents and accidents need to be reported within 24 hours of occurrence **
Emergency and Decontamination Plan *(Fire equipment, spill equipment, personal protective equipment, fire extinguisher, shower, eye-wash, decontamination equipment, mobile phone coverage, media coverage etc)*	
Safety Equipment:	
Additional Site Requirements (E.g., site inductions, work permits, licenses /certificates, audits, inspections, reporting mechanisms (made by client)	

Contact Phone Numbers	
Police, Fire Brigade and Ambulance	
Hospital	
Port Authorities	
Accommodation	

Field Schedule				
Date	Activity	Personnel	Travel	Accommodation

List the qualifications required to complete the works:	
List the training required by workers to complete the works:	
List the permits, certificates, working approvals required to complete the works:	
List the codes of practice, legislation and any applicable standards which pertain to the work:	
List the plant / equipment that will be used on site:	
List the maintenance checks for plant and equipment and the frequency of site/workplace inspections (and who will undertake the inspections):	

Attachments

Attachment 1 – Standard Operating Procedures: Marine Operations / Working on or Near Water

Attachment 2 – Job Hazard Analysis Form

Attachment 3 – Pre-Start Meeting

Attachment 4 – Incident / Accident Report Form

Attachment 5 – First Aid Register

Attachment 6 – Check in Procedure

Attachment 7 – Diver Checklist

Roles and Responsibilities			
Personnel	Responsibilities	Signature / Date	
Project Manager or Site Supervisor	• Responsible for the day to day implementation of the health and safety plan in all phases of work. • Ensure that the project site is inspected daily and that any required modifications to the project H&S Plan are noted, communicated to all project staff and are implemented. • Ensure that onsite daily Toolbox meetings are held with all site staff (including staff and subcontractors)		
ESIA Consult Field Personnel	• Ensure the on-site activities and deliverables conform to this H&S Plan. • Ensure that appropriate PPE is worn. • Report any incidents or accidents as soon as possible. • Ensure that Site Supervisor or delegate conducts an onsite daily Toolbox meeting.		
Contractors	• Responsible for abiding by ESIA Consult H&S plan. • Provide H&S Plans and/ or SWMS's for work to be undertaken. • Ensure the on-site activities and deliverables conform to this H&S Plan. • Ensure that appropriate PPE is worn, and site areas are mapped out containing safety factors. • Report any incidents or accidents to the ESIA Consult Field Staff / Site HSO as soon as possible. • Contractors should demonstrate to ESIA Consult appropriate OHS knowledge and performance, be able to identify risks associated with the work they are doing and provide suitable work methods to minimize the risks to themselves and others.	Sign induction log	

The amount of detail provided in each HASP will vary with complexity of the project and degree of hazard involved. As a minimum, each HASP must address the following topics, where appropriate:

☐	Site Description and Site Background
☐	Scope of Work
☐	Potential Hazards and Hazard Assessment for Each Task & Operation
☐	Organization and Responsibilities
☐	Ambient Air Monitoring and Personal Monitoring
☐	Noise, Heat/Cold, Radiological, etc. Stress Monitoring
☐	Respiratory Protection
☐	Personnel Protective Clothing and Equipment for Each Task
☐	Action Levels for Upgrades/Downgrades of PPE
☐	Site Control and Decontamination
☐	Personnel Hygiene and Decontamination Facilities & Procedures
☐	Site Specific Medical Surveillance Parameters
☐	Training, Initial and Site Specific
☐	Emergency Response Plan and Contingency Procedures
☐	Emergency References
☐	Hospital Location Map
☐	On-site First Aid and Emergency Equipment
☐	Accident Reporting, Investigation, and Recordkeeping
☐	Confined Space Entry
☐	Trenching and Excavation
☐	Hot Work in Potentially Flammable/Combustible Environments
☐	Special Protective Measures
☐	Ability to Stop Works if unsafe practices are observed

Health and Safety Plan Approved: ☐ Yes ☐ No By:.....(Name)

☐ Project Manager ☐ Project Director.....(Title).....(Date)

Potential Consequences or Impacts				Likelihood				
	Keyword			Almost Certain	Highly Likely	Likely	Possible	V Unlikely
Hazard Severity		Severity	Indicative Damage	A Several times/ month	B Once per month	C Once per year	D Once every 10 –20 years	E Once every 100 years
	1 Minor	Near miss with minor potential consequence or first aid injury	<$5,000	Medium	Medium	Low	Low	Low
	2 Significant	Doctor treatment injury.	*$5,000 to* <$25,000	High/Med.	Medium	Medium	Low)	Low
	3 Serious	Lost Time injury or non-life threatening health issue (e.g. hearing loss)	$25,000 to < $250,000	High	High/Med.	Medium	Medium	Low
	4 Major	Extreme injury or permanent health issue (e.g. silicosis, asbestosis)	$250,000 to <$2.5 mill	High	High	High/Med	Medium	Medium
	5 Catastrophic	Fatality, High level prosecution expected	≥ $2.5 million	High	High	High	High/Med	Medium

Log of inducted project personnel

All Personnel, Visitors and Contractor to sign once inducted into the contents of this Plan

Date	Name	Position	Company Name	Signature

Attachment 1 – Standard Operating Procedures: Marine Operations / Working on or Near Water

CONTENTS

PURPOSE

Establishes the minimum requirements and guidance for ESIA Consult personnel assigned to projects that place them at risk of falling into water, including working ashore near to or over water, on water operations with unpowered craft, small boat operations, and work aboard coastal and offshore vessels.

DEFINITIONS

A glossary of standard nautical terms used in this SOP is provided as Attachment 1.

ROLES AND RESPONSIBILITIES

PROJECT MANAGER

The Project Manager (PM) is responsible for the overall success of a project and the performance of employees engaged in project activities. The PM shall ensure that all appropriate Safety, Health and Environmental (SH&E) procedures are identified and implemented:

- Determining the applicability of this SOP during the planning stage of the field investigation projects
- Confirming that the marine subcontractor selected to support project operations is appropriately qualified and has been approved by the client
- Allocating appropriate resources to implement the required measures
- Designating a field team member to implement and maintain these measures, maintain related documentation, and to communicate with appropriate parties as necessary
- Ensuring that the project is properly staffed with trained employees
- Ensuring that a float plan (refer to Section 4.1.3.7) is filed and executed properly.

FIELD TASK MANAGER/SUPERVISOR

The Field Task Manager (FTM) is responsible for training and equipping field staff for the work at hand. The FTM is also responsible for conducting daily safety meetings, performing field safety audits, ensuring that all safety issues and equipment deficiencies are properly corrected, and that the proper equipment is available to the field staff to safely meet the goals and quality objectives of the project. Where project / team is small, the PM may also be the FTM.

FIELD STAFF

Employees are responsible for complying with the safe work practices specified in this policy and all other applicable policies and reporting all unsafe working conditions.

- Ensuring that their training is up to date
- Ensuring that equipment is properly maintained and functioning

- Following safe boating and near-water safety procedures
- Reporting incidents and near misses when they occur

PROCEDURE

Any project that involves marine on-water operations or near/over-water activities must prepare a sites-specific Health and Safety Plan (HASP). All field staff will be required to read and understand the principles of the HASP and review and be familiar with the requirements of this SOP. The HASP must include identification of all hazards associated with the project and the protective measures needed to minimize risks (illnesses and injuries). This SOP describes the safety principles/procedures that shall be implemented by ESIA Consult employees engaged in working ashore near to or over water or conducting any on-water operations on behalf of ESIA Consult.

OVERALL REQUIREMENTS

Pertinent general requirements for the various field activities covered by this SOP are discussed in Section 3.2. The general safety considerations which apply to all on-water or near-water field projects are listed below.

General Safety Considerations

- Personal protective equipment (PPE) specified in the project-specific HASP is to be worn at all times.
- Whenever there exists the possibility of falling into water, personnel should be attired in a USCG approved Type III or Type V work vest. The vest must be properly sized for the individual and should be secured at all times.
- Swimming is prohibited, unless that being conducted by certified divers in the completion of their assigned task, or to prevent a serious injury or loss of life in a person in water/person overboard emergency.
- The consumption of alcohol is strictly forbidden while aboard any vessel or on any job site.
- The buddy system should be utilized whenever there is the possibility of falling into water, in which two persons operate as a single unit in order to monitor and assist each other in performing tasks.
- Single-handed vessel operations or conducting shoreline work alone should be avoided, unless constant communications is maintained between personnel and prior approval by the Project Manager is granted. For operations on offshore vessels, personnel are not permitted to work on deck alone, unless they are in a clear line of sight by another member of the ship's crew monitoring their activity from within the pilothouse. A throwable rescue device (Type IV flotation aid) along with whatever equipment (i.e., ladders, lifting gear, or rescue boat) necessary shall be immediately available to recover an individual from the water.
- A float plan should be filed prior to departure (refer to Section 4.3.1.7) and included in the HASP.
- When working with potentially hazardous materials or situations, follow safety procedures as defined by the Job Hazard Analysis (JHA) provided in the HASP, which must be prepared prior to any activities.
- All gear and personnel effects shall be properly stowed to prevent shifting and coming adrift while at sea.
- All deck equipment shall be properly secured to prevent shifting. Heavy equipment and portable machinery loaded on deck shall be secured with properly sized lashings while in transit.
- Equipment shall be secured on deck in a manner that retains a clear and safe walkway. Personnel shall not be permitted to pass fore and aft, over or around gear unless the proper means has been established to do so safely.

- All passengers in small boats shall remain properly seated at all times while the boat is underway. Standing at the edge of open transoms whenever the boat is underway or preparing to maneuver is not permitted.
- Moving and carrying gear aboard a boat shall be conducted in a fashion which provides one free hand to hold onto railings whenever using stairwells. Heavy and bulky items shall be separated out or broken down into smaller more manageable lifts or a teaming arrangement with another crew member should be made to facilitate safe handling.

SUMMARY REQUIREMENTS

Land-based (shoreline/bridge/pier – includes wading)

Definition: Work that includes shoreline surveys, working along river banks, working over water (such as on bridges and piers), and field surveys in shallow waters where personnel are attired in waders and boat support is not required.

ESIA Consult Policy: Under these conditions, ESIA Consult requires that whenever there exists the possibility of falling into water, personnel should have access to a USCG approved Type III or Type V work vest. The vest must be properly sized for the individual. A Type IV throwable rescue device shall be immediately available to the field crew

General Notes: In certain situations, the safety hazards working along the waterfront can be significant, especially if the rescue of an individual from the water is challenged by shoreline topography or accessibility, an elevation above the water (or height of a possible fall) or river or tidal currents. Consideration of these hazards should be included in emergency response planning.

Small Boat Operations (<5m in length)

Definition: Operations including canoes, kayaks, coring rafts, and small dinghies/dories with either electric or gas-powered outboards.

ESIA Consult Policy: General safe boating guidelines to be considered in developing a project-specific HASP. Personnel should have access to a USCG approved Type III or Type V work vest. The vest must be properly sized for the individual. ESIA Consult marine personnel, if operating the vessel, are required to hold an appropriate boat license for the vessel being used. Vessel operators must have prior experience and/or complete competency training. Singlehanded vessel operations are not permitted.

General Notes:

Small boats must be loaded in a fashion so that the boat is trimmed (or balanced side-to-side and slightly lower at the stern). In addition, the vessel shall be loaded and operated within its limits as instructed by the capacity plate affixed to the boat by the manufacturer. This capacity plate sets the allowable maximum number of people, maximum weight of all passengers, maximum weight of all passengers and equipment, and the maximum horsepower for the engine.

Use only approved fuel containers. Refuel portable fuel containers off the vessel. When filling up portable fuel containers, extinguish all smoking materials, turn off engines, and all electrical equipment and other appliances that could cause a spark (including cell phones).

Keep fuel containers well grounded (do not fill the container in the truck bed – place it on the ground) and keep nozzle in contact with container during filling. Wipe up any spilled fuel.

Mid-sized Boat Operations (open platforms 5m-8m in length)

Definition: Vessels that are gas powered and may be either single hull boats or pontoon coring barges; the coring barges may also be equipped with A-frames, winches, and anchor handling systems for vessel positioning.

ESIA Consult Policy: General safe boating guidelines to be considered in developing a project-specific HASP.ESIA Consult marine personnel, if operating the vessel, are required to hold an appropriate boat license for the vessel being used.

Complete competency training is suggested for those who may not have experience with the size and type of vessel being operated. Singlehanded vessel operations are not permitted.

ESIA Consult employees are not permitted to operate hydraulic deck machinery.

General Notes: All vessels equipped with propulsion machinery must be registered in the state of principal use. A certificate number will be issued upon registering the vessel. These numbers must be clearly displayed on each side of the forward half of the vessel.

ESIA Consult does not own boats or watercraft in this size class. Therefore, activities that require their use will require either the rental of an appropriate craft or the subcontracting of these services to a qualified vendor, especially in situations requiring hydraulic handling systems such as coring barges or vessels equipped with A-frames. If a boat/watercraft rental is considered, the vessel must be obtained from an authorized location and the leasing facility must have documented licenses for the rental/lease of boats/watercraft and equipment and must provide liability insurance, maintenance logs, and orientation programs.

Training

Operating instructions will vary from vessel to vessel. Therefore, operators should read the vessel specific operations manuals, orient themselves to the vessel they are about operate, and consult with vendors or lessors who have specific operational knowledge in order to have questions answered.

The following are general operational instructions to be incorporated into field plans:

- Only qualified marine personnel shall be permitted to operate hydraulic machinery (winches, A-frames, etc.) for the deployment and recovery of scientific gear or surveying equipment.
- All personnel shall be advised of the inherent risks of prolonged exposure to the elements, such as direct sun, solar glare, wind, heat, cold, inclement weather, and vessel motion. Appropriate breaks should be implemented to limit exposure to the elements when working in extreme hot or cold environments. The use of sunscreen is required. Plenty of liquids, food and/or snacks should be made available on-board for the expected duration on the water
- Vessel operations should be limited to 12 hours (dock to dock) to minimize fatigue.
- On-water personnel involved in sampling contaminated sediments or surface waters may be required to have a Hepatitis A vaccination depending on site conditions and are advised to consult with their Health and Safety Manager prior to the start of field activities.
- All on-water personnel should be competent swimmers.

PLANNING AND NOTIFICATIONS

Project Assessment

The project assessment should include an evaluation of the required tasks, the number and qualifications of field staff needed to effectively and safely perform the tasks, the types of gear needed, the required handling systems and available deck space needed to support the project, and the worst-case sea conditions that may be encountered in the survey area. This information will determine the best suited vessel (overall size, gear outfitting, and sea-keeping qualities) and whether appropriate professional licensure is required.

The project assessment is an essential part of project planning to ensure that the correct platform, staffing, and logistical details have been assigned to the project. As part of the assessment, an evaluation of the immediate survey area should be done to determine if survey operations will impact other marine traffic. Some of the details that go into a project assessment include:

Nautical Charts

Consult up-to-date charts (NOAA/NOS, NIMA, CHS, Admiralty, etc.) before leaving the dock to understand the conditions in your survey area, including water depths, navigation aids, underwater danger areas (pipeline and cable crossings), shoreline features, and major landmarks.

Site-Specific Water Conditions

Consult up-to-date tide charts, current conditions (river, longshore, rip tides, etc.), swell and surf conditions, and other water level/condition information available prior to initiating on water or near water operations.

Communication Plan

A communications list shall be drafted prior to departure that includes emergency contact information for all ESIA Consult staff on board, including the names of personal physicians if required for medical reasons. If someone is injured in the course of performing work, field staff must follow the in the project-specific Health and Safety Plan – including the completion of an incident report and a first aid record.

All on-water project planning must include a communications list which includes a designated emergency contact for each person aboard, phone numbers for medical facilities and emergency responders, local authorities, including police, USCG, marine patrol, harbormasters, and a local Sea Tow service. Contact information for personal physicians is suggested for all personnel with voluntarily reported medical conditions that may require special attention.

Security

Since the events of September 11, 2001, many ports and harbors have established security zones around bridges, industrial facilities, marine terminals, power plants, and Navy vessels. If field survey activities are planned within 100 m of any of these critical infrastructure features, the USCG or local equivalent and local port authorities must be notified, and proper authorizations must be granted beforehand. Once authorization has been granted, work must be conducted within the permitted start and end dates. It is also recommended that the local pilots association be consulted prior to initiating in water activities in or near commercial ports.

For inland waters, lakes, and rivers, local law enforcement authorities must be notified whenever working near bridges, drinking water reservoirs, power plants, or dams.

Hazardous Weather Planning

Local marine forecasts should be checked in advance of any planned on-water operation to ensure that an adequate safe weather window exists to support the expected field schedule.

Never leave the dock or safe anchorage without first checking the local marine forecast.

Operations being conducted in exposed marine environments shall monitor marine weather broadcasts for the latest forecasts and marine advisories.

River Conditions / Dam Releases

Where applicable, you need to understand the conditions of the river in which you are working. If the river stage and flow is controlled by a hydropower dam, then it is imperative that you contact the local river, lake, or waterway systems management office for information on release quantities, schedules, and audible alarms. River conditions can turn hazardous almost immediately if caught unprepared by an unexpected release from an upstream dam.

There are some special concerns when working in rivers as discussed below:

- Know the waters to be navigated. Utilize river guide books and/or topographic maps for trip planning. Define locations for put-ins and take-outs along the survey route and for possible lunch break stops. A shore side person monitoring on-water activities is strongly recommended for safety considerations and to serve as a shuttle back to the put-in location at the end of the day.
- Because these river hazards are not readily apparent until you are actually upon them, and you may not have enough time to take evasive action, it is recommended that you review waterway system information or guidebooks before heading out on the water. Once identified, personnel must incorporate portaging of gear around these structures into their overall field logistics. A field reconnaissance level survey is suggested to identify suitable locations and routes for portaging and obtain the proper permissions from businesses and landowners if needed.
- Reschedule field surveys if conditions are simply too dangerous; for instance, during high stage high flow events, extreme cold, or windows of time where upstream dam releases may be possible.
- Never attempt to navigate over a low head dam. Fixed-crest low head dams have dangerous currents on the down-current side of the dam. These orbital re-circulating currents create a hydraulic effect that can actually hold or draw even a motorized boat into danger; the entrained air bubbles will render propellers useless and escape nearly impossible. Rescue is very difficult and the risk of serious injury or a fatality is very real. In the event of an unintentional over-turning incident, personnel should stay with their craft – they float. The craft should then be maneuvered to the nearest shore.
- Beware of strainers! Strainers are fallen trees, bridge pilings, undercut rocks or anything else that allows current to flow through it while holding you or capsizing your boat. Learn re-entry techniques into your boat. Stay with boat if possible.
- In shallow swift water, if separated from the boat assume a defensive position by lying on your back, legs pointing downstream. Arch your back to stay close as possible to the surface to avoid bumping the bottom. Keep your feet on the surface; this helps you avoid one the most common river hazards – foot entrapment. This is caused by standing in a swift current and having your foot pushed into a crevice or snarled root, etc. Maneuver to the nearest shore and stand only when the water is knee deep or less. It is always advisable to wear proper foot protection (boat shoes) so that you are prepared to deal with just such an emergency.

Float Plan

Float plans shall be prepared for all vessel operations to document vessel information (make/model, hull color, and other distinguishing features), personnel on board, description of activities being performed, expected time of departure, planned time and location for arrival, course being travelled, and pertinent contact calling information for reaching the vessel. This information shall be submitted to a competent individual on-shore who assumes the responsibility of initiating emergency response procedures if the vessel does not check in at the designated time.

In the event the return is delayed, and it is not an emergency, the boat crew must inform those holding the float plan, and subsequently notify them upon returning to the dock so that the float plan can be closed out – avoiding an unnecessary and costly search.

If the vessel was trailered to a public ramp, then vehicle information (make/model and license), ramp location, and contact information for the local police department should be included in the float plan.

A sample float plan can be found in Attachment 2.

Utility Notifications

Marine projects that include activities such as anchoring, coring, grab sampling, spud positioning, or any activity with the potential to damage sub-bottom utilities or underwater structures must conduct a presurvey utility clearance. Local utility companies (electric, phone, gas, cable networks) and/or the local Dial before you dig, DIG SAFE, ONE CALL, or equivalent office shall be consulted prior to the commencement of field activities to ensure that proper clearances are defined around these marked-out corridors to prevent the interference or damage of these

utilities. If there are any uncertainties involved in locating underwater utilities, a sub-bottom and/or magnetometer survey shall be conducted to identify utilities or structures in the work area.

A check of published nautical charts will generally indicate the location of defined utility corridors, but these typically show major utility crossings such as gas pipelines and major electrical distribution cables.

These utility crossings are generally marked on each bank on either side of the utility right-of-way with a sign board reading "CABLE CROSSING - DO NOT DREDGE – DO NOT ANCHOR.

SAFETY PREPAREDENESS

Required Safety Gear

Work clothing must be suitable for the anticipated weather and working conditions. Deck shoes are permitted unless the project requires the lifting or the handling of gear, at which times steel-toed shoes are required. Safety glasses (tinted as necessary) should be worn at all times. Hard hats shall be worn during the deployment and retrieval of gear and at any time where there is the overhead transfer of equipment or gear, either aboard the vessel or dockside.

Vests shall be outfitted with reflective tape and further equipped with a rescue light if operations are expected at night, or during low light, or heavy weather conditions.

A life jacket or personal flotation device (PFD) is the most important piece of safety gear and may in fact make the difference between life and death for anyone experiencing an on-water emergency. One USCG approved wearable Type I, II, III, or V PFD must be carried for each person aboard. Vessels greater than 5 m are required to also carry at least one Type IV rescue aid.

Appropriate hearing protection equipment should be made available when working in close quarters to heavy or loud equipment (dredge machinery, winches, air compressors, generators, etc.).

Harnesses/safety lines may be required for those personnel while working at an unprotected deck edge performing the over boarding or recovering of gear in a rolling sea.

Latex or Nitrile gloves and eye protection are required during the handling of any contaminated material or in any situation that poses an exposure risk to hazardous materials, including handling of hazardous chemicals such as Formalin (used in the preservation of benthic community samples), or acids (used in the preservation of aqueous samples). A copy of all pertinent Material Safety Data Sheets (MSDS) shall be immediately available to field personnel on site.

Beyond all the required safety gear specified herein, vessels providing berthing or enclosed occupied spaces should provide the following:

- Emergency lighting – Battery powered flood lighting shall be installed to illuminate walkways, stairwells, and emergency exits in the event of power failure.
- CO detectors/Smoke detectors – These protective devices of marine quality shall be required for all living quarters, enclosed occupied spaces, and pilot houses.

Development of Job Hazard Analysis (JHA)

The preparation of a project-specific health and safety plan should include a Job Hazard Analysis (JHA). This hazard analysis examines each basic step in a job task, identifies the potential hazards and determines measures to protect workers from these hazards. The task hazard analysis process is designed to help prevent accidents and injuries by identifying job hazards and providing recommendations to either removing them or incorporate control strategies and protective equipment. Hazards that should be addressed may include falling into water, gear deployment or overhead lifting, sediment contamination, shoreline risks (debris, blood-borne pathogens, encountering vagrants, etc.), dam releases, foul weather, etc.

One common hazard that is universal to most all field programs is the risk of back injuries from lifting gear incorrectly. This important consideration should not be overlooked.

Pre-Departure Briefing

Each day prior to departure, the designated ESIA Consult Safety Officer or Field Team Leader shall conduct a safety briefing (pre-start meeting) to review the activities being performed and identify the proper work sequences, the specific anticipated hazards, site conditions, equipment, materials, and the control measures to be implemented to eliminate hazards or minimize risks associated with each hazard, and applicable emergency response procedures.

EMERGENCY PROCEDURES

Stop Work Authority

The safety and health of all hands aboard will take precedence over cost and schedule considerations for all project work. All ESIA Consult personnel have the authority to STOP WORK if they see a potential or actual hazard that may threaten the safety of people or the environment. Upon stopping work, the designated ESIA Consult safety officer must be immediately notified and provided with information regarding the nature of the safety, health or environmental concern. Once the concerns are resolved to everyone's satisfaction, work can proceed.

If the concerns are not resolved to the satisfaction of the worker and/or the field safety officer, work does not proceed. The ESIA Consult project manager will be contacted to obtain assistance in resolving the concerns. The ESIA Consult PM will attempt to resolve the matter with all parties involved and work will not resume until this criterion is met.

Site Evacuation

Under certain conditions, field operations may be conducted on a working site managed by an Operating company or Agency, or as part of a larger site investigation managed by another firm and generally in accordance with the additional policies and procedures of an over-arching Site Safety and Health Plan (SSHP). If applicable, ESIA Consult may need to be briefed on the notification protocols for a site emergency and the specific muster location in the event of a site evacuation before the commencement of field operations.

Incident Reporting

In the event of any on-water incident resulting in personal injury or vessel damage, render all necessary aid and assistance without creating or exposing yourself or your crew to further risk. Do not leave the scene of incident without providing the other party or the appropriate law enforcement officer with the following information – Some states require the completion and submission of an incident form:

- Name of address of boat operator
- Boat registration number
- Driver's license number

You are required to contact a local boating enforcement agency (USCG, Marine Patrol, or local Harbor Master) immediately if:

- There has been a fatality or if a person is missing and cannot be accounted for.
- The injury results in a person losing consciousness or requires medical treatment beyond first aid.

ANNEX 1 – NAUTICAL DEFINITIONS

Abeam – At right angles to the keel of the boat, but not on the boat.

Aboard – On or within the boat.

Above Deck – On the deck (not over it - see Aloft).

Aft – Toward the stern of the boat.

Aground – Touching or fast to the bottom.

Ahead – In a forward direction.

Aloft – Above the upper deck of the boat.

Amidships – In or toward the center of the boat.

Anchor – A heavy metal device, fastened to a chain or line, to hold a vessel in position, partly because of its weight, but chiefly because the designed shape digs into the bottom.

Astern – In back of the boat, opposite of ahead.

Bearing – The direction of an object expressed either as a true bearing as shown on the chart, or as a bearing relative to the heading of the boat.

Bight – Any curved section, slack part, or loop formed in a rope or line.

Boat – A vessel for transport by water. Constructed to provide buoyancy by excluding water and shaped to give stability and permit propulsion.

Bow – The forward end of the boat.

Bulkhead - Wall-like constructions inside a vessel, as for forming watertight compartments, subdividing space, or strengthening the structure

Buoy – An anchored float used for marking a position on the water, a hazard, or a shoal. A surface marker float for a mooring.

Captain – A person who is at the head of or in authority of all others aboard a vessel.

Cleat – A fitting to which lines are made fast. The classic cleat to which lines are belayed is approximately anvil-shaped.

Cockpit – A sunken, open area, generally in the after part of a small vessel, provides space for part or all of the crew.

Dock – A protected water area in which vessels are secured to a pier or a wharf.

EPIRB – Emergency Position Indicating Radio Beacon – transmits a signal that allows rescue personnel to determine a vessels position at sea once it is activated in the event of an emergency.

Fathom – A depth increment of 6 feet.

Fender – A cushion, placed between boats, or between a boat and a pier, to prevent damage.

Float Plan – A document prepared by the boat crew and left with a competent person shore side that defines the itinerary and particulars of the vessel and crew, serving as an informational resource for emergency responders in the event the boat does not return at the appointed time.

Freeboard – The portion of the side of a hull that is above the water.

Gunwales - The widened edge at the top of the side rail of the boat, where the edge is reinforced

Knot – A measure of speed equal to one nautical mile per hour or 1.852 km/hr.

Knot – A fastening made by interweaving rope to form a stopper, to enclose or bind an object, to form a loop or a noose, to tie a small rope to an object, or to tie the ends of two small ropes together.

Leeward – The direction away from the wind.

Life-line – A line secured along the deck to lay hold of in heavy weather

Mooring – An arrangement for securing a boat to a mooring buoy or a pier.

Overboard – Over the side or out of the boat.

Personal Flotation Device (PFD) – PFD is official terminology for life jacket.

Port – The left side of the boat when looking forward (toward the bow).

Running Lights – Navigation lights required to be shown on boats underway between dusk and dawn.

Starboard – The right side of the boat when looking forward (toward the bow).

Stem – The forward most part of the bow.

Stern – The after part (back) of the boat.

Transom – The aft face or back board of the boat.

Wake – Moving waves, track or path that a boat leaves

Windward – Toward the direction from which the wind is coming (a.k.a. weather side) - Opposite of leeward.

ANNEX 2 – SAMPLE FLOAT PLANS

These Float Plans can be downloaded at:

- http://floatplancentral.cgaux.org/download/USCGFloatPlan.pdf
- https://azureblob.faecdn.com/cdn/d/bex/pdf/2017-bex-us-float-plan-dept-checklist.pdf

Attachment 2 – Job Hazard Analysis Form

Hierarchy of Controls

1. Eliminate hazard/s
2. Substitute hazard/s
3. Isolate hazard/s
4. Use engineering means
5. Use administrative means
6. Use Personal Protective Equipment

Each member is to sign off to indicate consultation and training in the contents of the Job Hazard Analysis (JHA). Further, workers must only sign if they understand and agree to work in accordance with the additional procedures.

Name of Supervisor for job activity

NAME (please print)	SIGNATURE

---------- _____

Signature of supervisor Date

ESIA Consult

Republic of Marshall Islands Maritime Investment Project

Occupational, Health and Safety Plan

Important Note: Remember to transfer this information into your Work Method Statement (WMS).

Date			Name of Person completing JHA				
Job task and location							
Is there a WMS for this task?	☐ YES	☐ NO	If YES, has your crew been tool boxed in the WMS?	☐	YES	☐	NO
If YES, is there anything different about the task or the work area? Please describe.							

Are there new hazard/s present that have the potential to cause harm?	# Risk Ranking (use Hierarchy of Controls)

WHAT ARE THE BASIC STEPS?	POTENTIAL HAZARDS	RISK RANKING (without control measures)	HAZARD CONTROLS (what controls can be put in place to make the job safe and minimize the risk)	WHO WILL ENSURE THAT THIS IS DONE?

TAKE FIVE –

1 Stop and Look

2 Think through the task

3 Identify hazard/s

4 Control hazard/s and communicate to supervisor

5 Do the job safely

LEVEL OF RISK (RISK RATING)

Likelihood	Consequence				
	1-Catast	2-Major	3-Mod	4-Minor	5.Insignif
A -Almost certain	High 1	High 2	High 4	Med 7	Med 11
B - Likely	High 3	High 5	Med 8	Med 12	Med 16
C - Possible	High 6	Med 9	Med 13	Med 17	Low 20
D - Unlikely	Med 10	Med 14	Low 18	Low 21	Low 23
E - Rare	Med 15	Low 19	Low 22	Low 24	Low 25

Risk Between	Category
1-6	High Risk
7-17	Medium Risk
18-25	Low Risk

Personal Protective Equipment (PPE): Standard PPE must be worn at all times.

Attachment 3 – Pre-Start Meeting

Name		Position	
Job Description			
Location			Date
Weather	☐ Fine	☐ Cloudy	☐ Wet
Risks – identify any risks involved with the job Double-click the box for type of incident	☐ Burns	☐ Collapse	☐ Electrical Equipment
	☐ Electrical Shock	☐ Environmental Spill	☐ Excavation
	☐ Fire / Explosion	☐ Gas Escape	☐ Hand Injuries
	☐ Hard Hats	☐ Heat Stress	☐ Hazardous Substances
	☐ Ignition Sources	☐ Lifting Equipment	☐ Manual Handling
	☐ Overhead Obstructions	☐ Pneumatic Tools	☐ Public Safety
	☐ Rotating Equipment	☐ Slips / Trips / Falls	☐ Snakes / Vermin
	☐ Supply Loss	☐ Traffic	☐ Underground Utilities
	☐ UV Exposure	☐ Working in Isolation	☐
Controls – identify any controls to be applied on the job Double-click the box for type of incident	☐ Barricading	☐ Communication	☐ Containment
	☐ Cross Bonding	☐ Depressurize	☐ Eye Protection
	☐ Fire Extinguisher	☐ First Aid Kits	☐ Gas Detection
	☐ Gloves	☐ Hand Protection	☐ Head / Face Protection
	☐ Hearing Protection	☐ Hi-Vis Vest	☐ Isolations
	☐ Locating Equipment	☐ Lockout & Tag	☐ Machinery Guarding
	☐ Observer / Spotter	☐ Potholing Procedures	☐ Protective Clothing
	☐ Rest Periods	☐ Respiratory Protect	☐ Restrictions
	☐ Safety Harness	☐ Screens	☐ Services Located/Mark

	☐	Signage	☐ Speed Restrictions	☐	Step Back
	☐	Traffic Control	☐ Trainee Supervision	☐	Training
	☐	UV Protection	☐ JSEA signed	☐	

LIST OF WORK SAFETY INSTRUCTIONS REQUIRED	LIST OF JOB HAZARD ANALYSIS REQUIRED

NAME	SIGNATURE	NAME	SIGNATURE

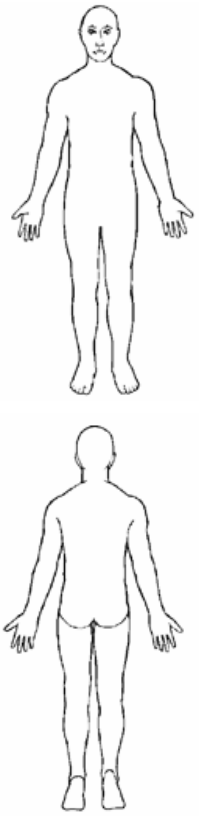
ADDITIONAL ITEMS NOTED DURING REST PERIODS, NEW HAZARDS, NEW CONTROLS

Attachment 4 – Incident / Accident Report Form

Double-click the box for type of incident	☐ HAZARD		☐ NEAR MISS		☐ INCIDENT
Name					
Date of Incident			Time of Incident		
Project Name (if applicable)					
Project No.			Report No		
Type of Incident Double-click the box for type of incident	☐ Competency & Training		☐ Electrical		☐ Environmental Incident
	☐ Ergonomics		☐ Health & Hygiene		☐ Injury
	☐ Material Handling		☐ Personal Attributes		☐ Plant & Equipment
	☐ PPE		☐ Vehicle Incident		☐ Other
Actual Severity Level (1, 2 or 3):					
Potential Severity Level (1,2, or 3)					
Location of Incident					
Description of Location					
Incident Description / Contributing Factors / Summary of Events					
Immediate Action					
Corrective Actions					
Additional Actions (if required)			Person Responsible		Close-out Date

Attachment 5 – First Aid Register

This form is to be completed as a quick record of the Injury/Illness **whenever first aid is administered to an employee of contractor**. The form is to be completed by the team member who administered First Aid. It is not a medical assessment, but simply a brief summary of the event, observations and management.

Date		Time	
Patient Name			
Date of Birth		Gender	Male / Female
Address			
Location			
Incident Description of illness / injury			
Observations		Please circle location of injury/illness 	

Treatment	
Follow-up	
Ambulance	YES / NO
Health Service	YES / NO
Own Doctor	YES / NO

Attachment 6 – Check in Procedure

Attachment 7 – Diver Checklist

Date: _____ Project Name: _____

Location: _____ _____

Divers: _____

_____

Person Conducting Assessment: _____

Issues	Yes / no	Comments - action taken
Medical fitness to dive • Do all divers have a current (12 months) certificate of medical fitness to dive? • Is the certificate kept for one year after work has finished?		
Competency • Are written records demonstrating the diver's competence kept for one year after work has finished? General diving work • Does each diver hold a statement of attainment for the general diving work to be carried out? Or • Does each diver hold a certificate covering the subject areas (e.g. PADI divemaster, NAUI, SSI diving control specialist)? And • Does each diver have, through training, qualifications or experience, sound knowledge and skills in relation to (*competency checklist*): o The application of diving physics o The use, inspection and maintenance of diving equipment (including emergency equipment) and air supply of the type to be used in the proposed general diving work o The use of decompression tables or dive computers o Dive planning o Ways of communicating with another diver and with persons at the surface during general diving work o How to safely carry out general diving work of the type proposed to be carried out o Diving physiology and first aid. Dive supervisor		

• Does the appointed dive supervisor hold qualifications to do the general diving work? And • Have experience in that type of work? Incidental diving work (general diving work) (only applicable for work that is incidental to the business.) • Does the incidental diver have adequate training, qualifications or experience for the work in accordance with the *competency checklist* (see above)? And • Have 15 hours dive experience (depth restrictions apply)? • Does the diver only undertake *limited diving* which does not involve? o Diving to a depth below 30 meters o The need for a decompression stops o The use of mechanical lifting equipment or a buoyancy lifting device o Diving beneath anything that would require the diver to move sideways before being able to ascend o The use of plant that is powered from the surface o Diving for no more than 28 days during a period of six months. • Is the diver accompanied and supervised in the water on each dive by a diver competent to undertake general diving work? Limited scientific diving work (general diving work) (only for non-resident divers undertaking scientific diving work.) • Does the limited scientific diver have adequate training, qualifications or experience for the work in accordance with the *competency checklist*? And • Have 60 hours dive experience (depth restrictions apply)? • Does the diver only undertake *limited diving* (see above)?		
Risk assessment • Has risk management been carried out to: o Identify all hazards o Eliminate or minimize all risks o Minimize all risks using the hierarchy of controls o Maintain selected control measures o Review control measures. • Has a risk assessment been conducted by a competent person?		

• Has a written record been kept of the risk assessment that is accessible to all relevant workers and available for inspection? • Has the risk assessment been kept for 28 days after the relevant work finishes? Or • For two years if a notifiable incident has occurred?		
Dive supervisor • Has a dive supervisor been appointed? • Does the dive supervisor supervise the work undertaken?		
Dive plan • Has a dive plan been prepared by the dive supervisor for the dive? • Does the dive plan state: o The method of carrying out the work o Tasks and duties of each person o Equipment, gases and procedure to be used o As applicable, dive time, bottom times and decompression profiles o Specific hazards and control measures o Emergency procedures (may be a separate document). • Is the dive plan complied with, as far as is reasonably practicable? • Does the dive supervisor provide instruction to workers about the dive plan? • Is the dive plan kept until the work to which it relates is completed or for two years if a notifiable incident has occurred?		
Dive safety log • Is a dive safety log kept for every dive containing: o Name of each diver o Names of other persons in the dive team, including the dive supervisor o Date and location o Time in and out o Maximum depths o Incidents and injuries o Dive or bottom time o If not using a dive computer, repetitive groups, surface intervals and repetitive factors o If using eanx-O_2 content and maximum operating depth o If using mixed gas- O_2 and N_2 contents, maximum operating depth and minimum operating depths of the bottom mix.		

• Is the entry for each dive signed by the diver and dive supervisor as soon as practicable after each dive? • Does the dive supervisor count and record all persons on board any vessel before diving commences and before the vessel departs after the diving work is completed? • Has the dive safety log been kept for 28 days after the relevant work finishes? Or • For two years if a notifiable incident has occurred?		
Specific risks • Are suitable controls in place for divers diving from vessels that are underway? (e.g. Propeller guards, lookouts, emergency breathing supply, marker buoys) • Is the equipment being used by divers suitable for the work? Is it cleaned, checked and in working order before work starts? • Are compressed air cylinders filled, tested and maintained according to international standards? • Has air quality been tested in the last six months? • Have appropriate standards been used to manage decompression? Are they being used consistently and conservatively? • Does the dive site have a written emergency plan, including first aid? Is it available to all workers? • Have effective rescue procedures been developed? Are workers trained in these procedures? • Do workers hold current first aid and O_2 resuscitation certificates?		
Other regulatory considerations • Are notifiable incidents reported to WSHQ as required? • Has information, training and instruction been provided for workers to ensure health and safety? Including tool box talks, site and dive briefings. • Is a safe and healthy general working environment provided? Including housekeeping, temperature, drinking water, lighting, accommodation. • Is personal protective equipment provided, maintained and used? • Are risks from working in remote or isolated places managed? • Are electrical risks controlled? • Are risks from falls and falling objects controlled? • Are risks from noise controlled?		

• Are risks from hazardous manual tasks controlled? • Are risks from entry to confined spaces controlled? • Is work associated with demolition, construction and asbestos controlled as required? • Are risks from plant and structures controlled? • Are risks from mobile plant controlled? • Are risks from hazardous chemicals and lead controlled?		