IAGC Guidelines for Marine Small Boat Operations

September 2013
Guidelines for Marine Small Boat Operations

Preface

The International Association of Geophysical Contractors aims to provide guidance to the Geophysical industry, through cooperation between members in sharing and development of industry guidelines. Marine Small Boat operations are recognised as one of the highest risks to the industry and survival capability in emergency situations a critical element. This guideline has been prepared through the best efforts of member companies with the intent to provide best guidance.

IAGC does not represent that this guideline is entirely comprehensive, accurate or covers each and every safety topic which may be encountered by those using this guideline. The IAGC disclaims all responsibility and liability for any such utilisation of the guideline by the users thereof.
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1. Introduction

1.1 Purpose

Marine Geophysical Small Boat operations are hazardous and it is the aim of this document to provide guidance on the operation of small boats based on a Hazard and Operational Study (HAZOP).

1.2 Definitions

Throughout this document the terms and definitions used are in accordance with OGP Glossary of HSE Terms, where possible company specific terminology for seismic equipment has been supplemented for generic terms or names. If you are in doubt of the meaning of a word or acronym in any part of this manual, ask your supervisor or HSE department to advise you. There is also a glossary of definitions at the end of this manual.

1.3 References

The references used in this manual are listed in Section 5; it is the responsibility of the user to monitor the references in case of updates or changes to Legislation, Regulation, Conventions, Standards or Guidelines.
2. Scope

2.1 Scope
The scope of this document is to provide guidance for the management of small boats used in support of marine geophysical operations. The committee responsible for writing this document reviewed small boat incidents that have occurred within the marine geophysical industry in order to identify hazards and their underlying causes in order to build a guide for industry best practice. The following elements of small boat operations were reviewed (A compendium of small boat related incidents can be found on the IAGC website):

- Operational Considerations
- Environmental Considerations
- Training and Competency
- Human Factors
- Boat Design
- Planned Maintenance Systems
- Best Practice
- Marine Geophysical Small Boat Incidents and Lessons Learnt
- Maritime Small Boat Incidents and Lessons Learnt

2.2 Small Boat Management in a Contracting Environment
The Geophysical Company management system should include small boat operations to effectively manage the risks to As Low as Reasonable Practicable (ALARP). Project specific hazards that may impact small boat operations should be highlighted and mitigated within the Project Risk Assessment (PRA)\(^1\) and communicated to the vessel. Client specific requirements for small boat operations should be communicated during the tender phase and support the geophysical companies’ responsibility to operate safely.

2.3 Legal Responsibilities
The ultimate responsibility for the safety of any small boat operation rests with the Master of the vessel who is legally accountable for the safety of all small boat operations.

\(^1\) HSE Management: Guidelines for Working together in a Contract Environment - OGP Report 6.64/423
Organisations and their people are often pursuing a number of different goals at the same time. Some of these are likely to be in conflict and if not well managed unsafe conditions can occur. Incompatible goals are often faced by crews in an attempt to maintain productivity and operational effectiveness. To minimise these conflicts the organisation should develop a holistic approach to managing small boat operations.
3.1 Managerial Controls

The effective management of small boat operations is based on a decision making process; Management, Control, Coordination, Communications and Information are fundamental to this process.

- **Management** at all levels of the operation should be competent to make decisions based on the information available. Management of the operation could be at multiple levels but ultimately controlled by one entity:
  - Seismic Vessel - Bridge
  - Seismic Vessel - Instrument Room
  - Small Boat - Coxswain
  - Small Boat - Mission Leader

A Toolbox Meeting (TBM) should be held prior to all nonemergency small boat operations and all persons involved in the operation should have the clear and unambiguous right to ‘Stop the Job’ if they believe the risks of the operations are uncontrolled.

- **Control** To ensure the effective coordination of an operation a central control is required, this central control acts as the coordinator and provides a conduit between all parties involved, they should ensure that the passage of information flows freely and is understood by all.

- **Coordination** The support of small boat operations may involve many parties within a project fleet. The effective coordination of all assets available can only be achieved through collaboration and good communications.

- **Communication** All persons involved in the operation must be able to communicate clearly in a concise manner using a common language, with an agreed terminology and understand the importance of maintaining open and clear passage of information.

- **Information** A TBM should also identify the management structure for the operation, other parties involved, details of the tasks to be achieved, methods of communication and emergency procedures. All personnel involved in the operations should be aware of the risks involved and the process for making changes to an operation when an unplanned event occurs. Vessels used to support a small boat operation or interact with a small boat should be provided with the necessary procedures and risk assessments appropriate to their level of interaction.

**Fatigue Management**

The organisation should develop within its Fatigue Management Plan a system to monitor and control the exposure hours of small boat coxswains and crew. Consideration should be given to providing additional small boat crews in areas where small boat launches are expected to exceed eight hours a day. Small boat crews should take regular breaks based on the environmental conditions and the tasks being undertaken.

3.2 Engineering Controls

Engineering controls should be considered through the selection, design and function of each of the components of the operation, each component should be fit for purpose and managed within a Planned Maintenance System (PMS) and supported by procedural controls:

- Boat Design and Function
- Launch and Recovery Methods
- Support Vessels
Boat Design and Function
Small boat operations can be divided into two main categories; Rescue and Task Specific. The design and construction of a small boat should be appropriate to the tasks and environmental conditions that it will be exposed to. A small boat not specifically designed for interacting with towed equipment should be limited to tasks that are appropriate to its design (An explanatory review of boat dynamics and design considerations can be found in Appendix 1):

- **Fast Rescue Boat/Rescue Boat**
  A Fast Rescue Boat (FRB)/Rescue Boat (RB) is defined under Chapter III of the International Convention for the Safety of Life at Sea 2004 (SOLAS) and the International Life-Saving Appliance Code 2001 (LSA Code)
  The FRB/RB is part of the vessels LSA and therefore its primary task is to be on standby for emergency situations. Should the FRB/RB become non-operational then a work boat or life boat may be utilised as the vessels rescue boat providing it fulfils the criteria defined in SOLAS, Chapter III Regulation 13

- **Work Boat**
  The work boat is the primary boat for carrying out operational tasks on seismic equipment. The scope of the operational tasks a work boat can undertake should be appropriate to its design, safety features and limitations of stability including the capacity of lifting devices and winches

- **Daughter Craft/Fast Rescue Daughter Craft**
  A Daughter Craft (DC) or Fast Recue Daughter Craft (FRDC) is a craft with an enclosed cabin for crew and survivors deployed from a mother vessel. To permit a DC or FRDC to operate independently from its mother vessel a Loadline exemption is required to be issued by the vessels’ Flag State authority

Launch and Recovery
Equipment used to launch and recover small boats should be designed to withstand the stresses expected from carrying out dynamic lifts during offshore operations. Where appropriate crew embarkation areas should be set as low as practicable to the vessels waterline. The PMS should incorporate all elements of the system including painter lines.

Support Vessels
All vessels within a project fleet whether chartered by the Contractor, Client or third party may be required to interact with a small boat or assist in the rescue of a Man Overboard (MOB), therefore should be assessed for its:

- **Ability to bring a small boat alongside:**
  - Fendering Arrangement
  - Bilge and other Discharge points
  - Rescue Zones (Embarkation Areas)
  - Enhance Security (Anti-Piracy)
- **Ability to communicate:**
  - Radios
  - Radar
  - Language
- **Ability to assist in search and rescue missions:**
  - Steering
  - Propulsion
  - Speed
Life Saving Appliances
• Rescue Boat (Including crew competency) if fitted
• Means of recovering a person from the sea
• Ability to recover or launch a small boat:
  • Davit capabilities and PMS
  • Davit crew competency
  • Painter line

3.3 Procedural Controls

Procedural controls are methods or instructions that specify rules and work practices, which implement or supplement engineering controls and may specify the use of personal protective equipment. The organisation should develop a hierarchy of procedural controls and communicate them to personnel directly and indirectly involved in the operation.

It is important when considering procedural controls to incorporate human factors. The term Human factor’s² is used to describe the interaction of the workers with each other, facilities, equipment and the Management System. This interaction is influenced by both the working environment and the culture of the people involved. Incorporating Human Factors and considering human behaviour will strengthen the individual’s situational awareness and allow them to accept and take personal responsibility for their actions, inactions and the actions or inactions of others involved in the operation. It promotes teamwork and trust in a group. The individual’s right to stop the job and carry out a last minute risk assessment when confronted with unexpected hazards should be reinforced during TBM and openly supported at all managerial levels.

A person’s swimming ability for example may influence their reactions or decisions whilst working on a small boat and therefore should be one of the considerations when selecting small boat crews.

Procedures
All standard tasks expected of small boats should have documented procedures. The procedure should where appropriate be supported with by risk assessment and refer to other supporting documents. All personnel involved in the operation should be conversant with the relevant procedures, mitigation measures and recovery methods.
Changes to towed equipment design or towing configurations should be assessed to identify any potential hazards and risks that may have an impact on small boat operations prior to implementation. Appropriate training and information should be provided to the vessel and crew to assist in their effective management of the risks.

Tool Box Meeting
A TBM should be held before any routine small boat launch, the TBM should identify:
• Roles and responsibilities of all persons involved in the operation
• Communications
• Personal Survival and Protection Equipment requirements
• Tasks to completed and order of priority
• Hazards and risks involved in the operation
• Emergency Procedures
• Contingency Plans
• Recovery Methods

Permit to Work

² OGP 454 Human Factor Engineering
Permits to Work should be considered whenever it is intended to carry out any work which may adversely affect the safety of personnel, the environment or operation. They are normally considered to be more appropriate to high risk and/or non-routine activities which may require some form of risk assessment prior to work commencing.

**Job Safety Analysis/Task Risk Assessment**
Where applicable all procedures should be supported by a risk assessment, the risk assessment should be used to confirm the validity of the procedure and ensure that the residual risk has been reduced to ALARP.

**Checklists**
Checklists offer a simple and effective method to reduce the likelihood of failure.

**Management of Change**
A procedure for planning and controlling changes, both permanent and temporary, in people, plant, processes, procedures to avoid adverse HSE consequences

**Matrix of Permitted Operations**
Guidance for the use of small boats can be provided to vessels through a Matrix of Permitted Operations (MOPO); the MOPO should consider generic Operational and Environmental constraints and may be supplemented by Project Specific Operational Constraints (An explanatory note on operational and environmental constraints can be found in Appendix 2).

**Operational Constraints** The following generic operational constraints should be considered:
- Close Pass
- Helicopter Operations
- Simultaneous Operations
- Time
- Distance
- Task
- Availability of Support Vessel
- Training

**Environmental Considerations** The following generic environmental constraints should be considered:
- Wave Height
- Swell
- Current
- Water temperature
- Wind Speed
- Nautical Twilight
- Visibility
- Electrical Storms
- Ice
- Floating Debris

**Project Specific Operational Constraints** Project Risk Assessments may identify additional operational hazards:
- Explosive Remnants of War, Guidance on encountering Explosive Remnants of War (ERW) can be obtained from Non-Governmental Organisations (NGO), Security Companies and National maritime organisations

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2 MGN 323 (M+F) Explosives Picked Up at Sea
• Territory Disputes
• Economic and asylum seeking refugees are present in many areas of world, often the vessels they travel in are overcrowded and of poor quality, under provisions in the UN and IMO Treaties, UNCLOS, Article 98, vessels have the duty to render assistance
• Piracy
• Third Party Activists
• Client expectations
• Local Legislation/Port State Control.

Cross Department Inspections and Audits
Cross departmental inspections and audits can be used to confirm the validity of the systems used to manage the engineering and procedural controls.

3.4 Training and Competency

All personnel boarding a small boat should be given the necessary HSE and technical related training in compliance with legal requirements, the organisations own policies/procedures and industry best practice.

Competency can be determined as the ability of an individual or team to perform a task in a professional manner. In developing competency the individual and/or team must demonstrate the knowledge, skills, attitude and aptitude appropriate to the task and the risks involved.

Small boat operations have their own unique hazards and all members of the small boat crew must be willing participants that are competent in the tasks they are expected to undertake. The IAGC have identified four competency levels for the small boat operations:

• **Coxswain.** The coxswain is the primary driver of the small boat and is responsible for the safe operation of the small-boat during the mission and not only has the ability but is expected to stop any task if the risk is not controlled

• **Backup Coxswain.** The backup coxswain is a member of the small boat crew who has the ability and competencies to return the small boat to either the Mother vessel or a supporting vessel should the coxswain become incapable of doing so

• **Crewman.** The crewman is a member of the small-boat crew who performs tasks either; during launch, recovery, maintenance of towed equipment, stores or passenger transfers

• **Supernumery.** The Supernumery is a person who is not part of the normal crew of the small-boat but may be required to travel by small-boat; as a trainee, an observer or a passenger

In addition to the small boat crew the operators of cranes, davits and painter lines have a vital role in all small boat activities and should have received appropriate training and be competent in the operation of the equipment they use and any immediate actions to be taken should an incident occur.

3.5 Survival and Safety Equipment

All small boat passengers and crew should be provided with the appropriate Personal Protective Equipment (PPE) and Personal Survival Equipment (PSE). Guidance for worldwide thermal protection requirements can be gained from the International Maritime Organisation with further guidance on the selection and testing of Integrated Survival Systems (ISS) from the IAGC.

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3 IAGC - Security Guidelines for the Seismic Industry
6 OGP - HSE Competence Assessment and Training Guidelines for the Geophysical Industry - OGP Report 6.78/292
7 IAGC - Guidelines for Marine Small Boat Training and Competency
8 IMO - Guidelines for the Assessment of Thermal Protection MSC/CIRC.1046 28 May 2002
9 IAGC - Guidelines for the Selection of an Integrated Survival System for Marine Geophysical Operations
All personnel should be aware of sea survival techniques and how to wear and operate all PSE supplied to them. A buddy-buddy system should be used to inspect personnel prior to boarding a small boat to ensure they are wearing the equipment correctly and that any Maritime Survivor Locating Device (MSLD) if worn is armed. All PSE and small boat specific PPE should undergo regular inspections and where appropriate, servicing.

### 3.6 Recovery Measures

When operating in locations where national or international Search and Rescue (SAR) may be limited or non-existent the organisation should consider providing enhanced arrangements for the effective SAR of a MOB. Where local chase or support vessels are on short term charter for the duration of the project the organisation should provide information on appropriate SAR techniques that incorporates the limited manoeuvrability of a seismic vessel when towing equipment.

**Search and Rescue**

The following search techniques or adaptation of the techniques appropriate to a seismic vessel with towed equipment deployed should be considered for a MOB\(^{10}\):\(^{11}\)

- Parallel Track
- Creeping Line
- Expanding Square
- Sector
- Barrier
- Track Line

The recovery method used for extracting a MOB from the sea should be rehearsed and all personnel including long and short term charter chase and support vessels involved.

In accordance with IMO\(^{12}\), all ships shall have ship-specific plans and procedures for recovery of persons from the water, taking into account the guidelines developed by the IMO.

The plans and procedures shall identify the equipment intended to be used for recovery purposes and measures to be taken to minimize the risk to shipboard personnel involved in recovery operations. Ships constructed before 1 July 2014 shall comply with this requirement by the first periodical or renewal safety equipment survey of the ship to be carried out after 1 July 2014, whichever comes first.

Specific awareness training should be given to all personnel of the potential for a MOB to suffer from Post Rescue Collapse (see definitions). There have been reported cases when a rescued person has suffered from post rescue collapse even with limited exposure time in the water.

**Drills**

The organisation should consider using scenario based training when carrying out MOB drills, a detailed debrief of the drill should be held and areas of concern addressed and shared across the organisation.

**Medical Support**

Appropriate medical support should be available on the seismic vessel and supporting vessels as defined by the area of operations and the environmental conditions expected.

All small boats should also be provided with Medical First Aid equipment and their crew trained on First Aid, consideration should also be given to local hazards presented by flora and fauna.

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\(^{10}\) IMO - International Convention on Maritime Search and Rescue (SAR)

\(^{11}\) IMO/ICAO - International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual

\(^{12}\) IMO - MSC 91/22/Add.1 Annex 2 – Chapter III - Life-Saving Appliances and Arrangements - Regulation 17-1
4. Best Practise

4.1 Best Practice

The following best practises have been identified based on industry experiences:

**Passenger Transfer** All personnel during transfers should be made aware of the hazards involved in the operation with particular attention given to personnel who have not undergone such an operation before, the following considerations should be made for each type of transfer:

**General**

- A passenger and crew manifest should be made for every journey and copies held onboard all vessels directly involved in the operation,
- All passengers that do not regularly participate in small boat operations should undergo awareness training for Small Boat Passenger,\(^\text{13}\)
- The use and meaning of hand signals to communicate should be agreed between the small boat and any vessel it will interact with,
- All passengers and crew should be provided with a Maritime Survivor Locating Device (MSLD), Personal Floatation Device (PFD) and when appropriate a survival or work suit,\(^\text{1}\)
- Passengers shall not be allowed to move around the boat unless directed by a member of the small boat crew,
- When embarking or disembarking only one passenger should be allowed to move around the boat at any time,
- No passenger should carry any baggage or stores when embarking or disembarking the boat,
- The type of transfer used and the method of embarking and disembarking of personnel should be explained during the tool box meeting,\(^\text{6}\)
- A test mission using all equipment should be undertaken prior to interacting with a new supporting vessel.

**Davit**

- All vessel davits that may be used to recover another vessels boat should be assessed for suitability,
- Areas immediately below, forward and aft of the davit area should be inspected and cleared of any snag hazards and discharge fluid points,
- Painter lines, lifting hooks and attached hardware should be adjusted to the different types of boat they may be required to interact with,
- The PMS for the davit and its associated equipment should conform to SOLAS Chapter III Reg 36.\(^\text{14}\)

**Pilot Ladder**

- The arrangements for pilot ladders and embarkation zones should conform to SOLAS Chapter V Reg 23\(^\text{15}\) and be appropriately, stored, maintained and inspected before use,\(^\text{16}\)
- All vessels in the project fleet should have their embarkation zones assessed for potential hazards to small boats i.e. discharge points, snag hazards, fendering, freeboard,
- Movement from or to the small boat is to be controlled by a member of the small boat crew,

\(^{13}\) OGP - HSE Competence Assessment and Training Guidelines for the Geophysical Industry - OGP Report 6.78/292
\(^{15}\) IMO - International Convention for the Safety of Life at Sea (SOLAS) 1974 (2010/11 Amendments) Chapter V Reg 23
• Embarkation zones requiring pilot ladders should be situated so as to minimize the ascent/descent height.

**Cradle**
• Passengers shall find a safe inboard handhold during launch and recovery,
• Passengers shall remain in position until informed to move by a member of the small boat crew,
• The boat must be secured using a painter line during launch,
• The cradle shall only be used for the small boats it is designed to accommodate.

**Gangway from Crew Boat**
• Assessed for the suitability of the boat to connect to the gangway,
• The connection between the boat and gangway should be fitted with a quick release,
• Only one person should move across the gangway at any time,
• Pinch points should be assessed and removed or marked appropriately.

**Docking Station**
• The boat and ladder should be assessed to ensure sufficient distance to prevent pinch points,
• Railings and ladder runners should allow firm contact and prevent personnel from slipping when ascending or descending,
• The boat and docking station should be assessed to ensure that the boat will be able to move freely in expected sea condition,
• The ladder should be assessed to determine if a fall arrest system should be used and the best type of fall arrest system to be used if required,
• Life jackets/personal flotation devices (PFD) should not interfere with personnel ascending or descending a ladder.

**Interacting with towed equipment:**

**Approaching towed equipment**
• Confirm location of boat to appropriate streamer,
• Carry out a systems check prior to the final approach to ensure that boat and required equipment are fully operational,
• All personnel to observe the approach for debris attached to the equipment,
• Directions to the coxswain should be provided by only one person,
• Approach from abeam,
• Confirm streamer has been raised.

**Departing from towed equipment**
• Visual and verbal confirmation that the towed equipment is free from any lifting device and the boats’ structure before manoeuvring away,
• Depart from the equipment in a controlled manner based on the type of operation.

**Breaking Streamer**
• A method should be used to ensure the safety of the operation should a propulsion/steering failure occur, as a minimum one of the following should be used,
  o Quick Release (Hard Eye)
  o Bow Winch (Safety Line)
  o Redundancy in propulsion
• Confirm power to streamer has been disconnected,
• Ensure no personnel are standing in pinch point or snap back zones when bringing the streamer inboard of the boat.

**Deflector’s under tow (This is considered a highly hazardous operation)**
• Do not enter or carry out tasks within the pressure wave area created by the deflector,
• Do not maintain a position directly in front of a deflector,
• Approach from abeam,
• All personnel to observe the approach for debris attached to the deflector,
• Directions to the coxswain should be provided by only one person,
• A dedicated lookout should be posted onboard the seismic vessel with direct communications to the bridge, small boat and instrument room (CCTV may be utilized).

**Removal of Debris from towed equipment**
• The crew and coxswain are to assess the debris prior to attempting to remove it,
• A LMRA should be carried out between the small boat crew and seismic vessel after the type of debris has been identified,
• The boat should have the appropriate tools to remove the debris,
• Do not tie off to any debris attached to towed equipment without using a method of quick release,
• Maintain good housekeeping on the boats deck,
• Never stand inside loops of ropes or fishing gear, as it may unexpectedly come under tension at any time.
• Be aware that debris may enter and foul the boats propulsion or steering.

**Stores Transfer:**
• A cargo manifest with weights should be produced for each trip,
• Cargo should be loaded to distribute the weight so it does not adversely affect the trim of the boat,
• Cargo should be loaded so it does not block scuppers or air intakes,
• The combined weight of the crew, any passengers and cargo shall not exceed the boat or davit capacity as defined by the manufacturer,
• Cargo lowered or raised by crane should be attached to the cranes hook by an extension strop with hook (stinger) to prevent injury or damage from the cranes hook and weight,
• Tag lines used should only be used to guide a load and not to prevent the load from excessive movement,
• No cargo should be secured to the deck of a boat with a self-righting capability,
• The crane driver should be competent,
• During crane operations whilst alongside and underway the boat should be attached to the vessel by a painter line,
• Hazardous goods should be handled and transported in accordance with the MSDS and manufacturers recommendations,
• Efficient planning should be used to reduce the number of small boat launches.

**Towing a Small Boat:**
• Procedures and training should be provided for towing a stranded small boat such as:
  • Alongside by small boat
  • Inline by small boat
  • Inline by support vessel
• Inline towing lines should be made of buoyant rope with a float attached
• Inline towing ropes should be attached to the towing boat/vessel by a method of quick release
• Minimise the crew onboard the towed boat.
## Definitions

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<tr>
<th>Name</th>
<th>Abbreviation</th>
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<tr>
<td>Deflector/Diverter</td>
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<td>A wing shape device that provides a lateral pulling force away from its attachment point</td>
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<td>Explosive Remnants of War</td>
<td>ERW</td>
<td>Explosive ordnance left over from a period of hostility</td>
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<tr>
<td>Fast Rescue Boat/Craft</td>
<td>FRB/FRC</td>
<td>A small fast boat used for search and recovery of a person in water, a legal requirement for large vessels</td>
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<tr>
<td>Free Board</td>
<td>FB</td>
<td>The distance from the waterline to the upper deck level, measured at the lowest point of sheer where water can enter a vessel</td>
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<tr>
<td>Free Surface Effect</td>
<td>FSE</td>
<td>The movement or displacement of fluid or small solid objects in a space that may affect the stability of a vessel</td>
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<td>Hazard Operability Study</td>
<td>HAZOP</td>
<td>A structured and systematic examination of a planned or existing process or operation in order to identify and evaluate problems that may represent risks to personnel or equipment, or prevent efficient operation</td>
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<tr>
<td>Integrated Survival System</td>
<td>ISS</td>
<td>The combination of items used to provide protection against the perceived hazards</td>
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<tr>
<td>Job Safety Analysis</td>
<td>JSA</td>
<td>A Job Safety Analysis is the result of a Job Hazard Analysis coupled with a Risk Assessment of each of the hazards involved. A company specific form or risk assessment</td>
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<tr>
<td>Matrix of Permitted Operations</td>
<td>MOPO</td>
<td>A matrix of tasks measured against conditions used to define if a task is safe to perform</td>
</tr>
<tr>
<td>Management of Change</td>
<td>MoC</td>
<td>A systematic process designed to identify the effects of a change in personnel, equipment, processes and procedures of a company which may have the potential for adverse effects on health, safety and the environment</td>
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<tr>
<td>Nautical Twilight</td>
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<td>The time when the centre of the sun is between 6° and 12° below the horizon</td>
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<tr>
<td>Name</td>
<td>Abbreviation</td>
<td>Definition</td>
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<tr>
<td>Personal Flotation Device</td>
<td>PFD</td>
<td>A device designed to assist a wearer, either conscious or unconscious, to keep afloat with their airway and head above the water surface also may be referred to as a Life Jacket</td>
</tr>
<tr>
<td>Personal Locator Beacon</td>
<td>PLB</td>
<td>A device that transmits a radio signal to indicate a person in distress</td>
</tr>
<tr>
<td>Personal Protective Equipment</td>
<td>PPE</td>
<td>Garments designed to protect the wearer's body from injury</td>
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<tr>
<td>Preventative Maintenance System</td>
<td>PMS</td>
<td>A system designed to carry out maintenance in intervals according to manufacturer's or class requirements</td>
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<tr>
<td>Post Rescue Collapse</td>
<td>PRC</td>
<td>A condition that is still relatively unexplained that may present due to hypothermia or secondary aspiration of water and lead to a fatality following successful rescue</td>
</tr>
<tr>
<td>Procedure</td>
<td></td>
<td>A method often documented used to describe a task (see also work instruction)</td>
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<tr>
<td>Risk Assessment</td>
<td>RA</td>
<td>A risk assessment is simply a careful examination of what could cause harm</td>
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<tr>
<td>Search and Rescue</td>
<td>SAR</td>
<td>The search for and provision of aid to people who are in distress or imminent danger</td>
</tr>
<tr>
<td>Simultaneous Operations</td>
<td>SIMOPS</td>
<td>The combinations of numerous operations or task at the same time</td>
</tr>
<tr>
<td>Streamer Cable</td>
<td></td>
<td>A plastic coated cable containing electrical wires and ropes towed behind a seismic vessel</td>
</tr>
<tr>
<td>Support Vessel</td>
<td></td>
<td>A vessel used to support the mother vessel, often used for the carriage of supplies such as fuel and materials.</td>
</tr>
<tr>
<td>Task Risk Assessment</td>
<td>TRA</td>
<td>A Task Risk Assessment is the result of a Task Hazard Analysis coupled with a Risk Assessment of each of the hazards involved. A company specific form or risk assessment</td>
</tr>
<tr>
<td>Tool Box Meeting</td>
<td>TBM</td>
<td>A short discussion by supervisors and employees that focuses on a task and the hazards associated with it</td>
</tr>
<tr>
<td>Work Instruction</td>
<td>WI</td>
<td>A method often documented used to describe a task similar to a procedure</td>
</tr>
</tbody>
</table>
IAGC - Guidelines for the Selection of an Integrated Survival System for Marine Geophysical Operations
IAGC - Guidelines for Marine Small Boat Training and Competency
IAGC - Security Guidelines for the Seismic Industry
IMO - Guidelines for the Assessment of Thermal Protection MSC/CIRC.1046 28 May 2002
IMO - Chapter III Life-Saving Appliances and Arrangements MSC 91/22/Add.1 Annex 2
IMO - International Convention on Maritime Search and Rescue (SAR)
IMO - International Convention for the Safety of Life at Sea (SOLAS) 1974 (2010/11 Amendments)
IMO - The International Life-Saving Appliance Code 2001
IMO/ICAO - International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual
ISO - ISO 12217 Small Craft - Stability and Buoyancy Assessment and Categorisation
ISO - ISO 12216 Small craft - Windows, port lights, hatches, deadlights and doors - strength and tightness requirements
ISO - ISO 11812 Small craft - Watertight cockpits and quick draining cockpits
MCA - Explosives Picked Up at Sea, Marine Guidance Note No. 323
MCA - United Kingdom Small Commercial Vessel and Pilot Boat Code of Practice (temporarily listed as Small Vessels in Commercial Use for Sport or Pleasure, Workboats and Pilot Boats – Alternative Construction Standards, Marine Guidance Note No. 280
OGP - HSE Competence Assessment and Training Guidelines for the Geophysical Industry - OGP Report 6.78/292
OGP - Guidelines on Permit to Work Systems - OGP Report 6.29/189
OGP - Human Factor Engineering OGP Report 454