

FUGRO GLOBAL ENVIRONMENTAL & OCEAN SCIENCES GROUP

**Health, Safety and the Environment Manual
Issue 6**

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Uncontrolled copy

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Health, Safety and the Environment Manual: B95002/Issue 4				
Rev	Date	Originator	Checked & Approved	Issue Purpose
0	28-Oct-05	Karen Childs	Greg Bush	Complete review of Issue 3 HSEMSM incorporating amendments throughout and reflecting management and location changes within the Fugro GEOS Group. In particular, review and amendment to SM102, SM103, SP221 and SP2299, including additional reference to other and new SPs and removal of duplication
1	28-Nov-05	Karen Childs QA & HSE Manager	Greg Bush Regional Director	Inclusion of new Safety Procedures / Records: SP241: Lifting and Mechanical Handling SP403: Toolbox Talk Form SP404: Lift Plan Form
2	27-Jun-06	Karen Childs	Gordon Hamilton	Two new HSE Representatives (Glasgow & Singapore Offices) – SM103 Change in Scottish Law on smoking in certain premises – SP223
3	27-Jun-06	Karen Childs	Greg Bush	Additional precautions to note whilst travelling – SP234
3	27-Jun-06	Karen Childs QA & HSE Manager	Jeff Coutts Managing Director	Annual review and amendment to HSE Policy Statement – SM101
4	06-Jul-06	Alastair Stagg Operations Manager	Garry Mardell Divisional Director	Additional mitigation measures added to SP231
5	24-Apr-07	Martin Denton QA & HSE Manager	Garry Mardell Divisional Director	Regulatory Compliance amendment
6	25-July-07	Martin Denton QA & HSE Manager		Regulatory Compliance Retention Scheduling Health and Safety Records - SM102 Smoking Regs 2006 – SP321 The Regulatory Reform (Fire Safety) Order 2005 Annual review and amendment to HSE Policy Statement – SM101 Lifting and mechanical handling sp241: -

Rev 6– July 07	Originator	Checked & Approved
Signed:		

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SM101: HEALTH, SAFETY & ENVIRONMENTAL (HSE) POLICY

It is the policy of Fugro Global Environmental & Ocean Sciences Group (Fugro GEOS) to manage its business and provide services in such a way that it minimises risks to the health and safety of its employees and other persons for whom it is responsible, and risks to the environment. The Company shall provide a safe and healthy working environment and equipment and shall act positively to prevent injury, ill health, damage, loss or environmental degradation arising from its operations. This shall be achieved via the implementation, promulgation and application of an HSE Management System (HSEMS) which is integrated with the Company's Quality Management System (QMS).

The Company shall:

- As a minimum, comply with International Standards and all rules and regulations, local, regional, national and international, on HSE, which apply to its activities
- Act in accordance with the Fugro Group Business Principles, Policies, Rules and Procedures.
- Take account of HSE issues when making commercial decisions and prior to any activity
- Work with and contribute constructively to HSE initiatives within the industry
- Identify hazards and reduce associated risks to levels as low as reasonably practicable with the application and use of appropriate control measures and to review these assessments
- Ensure personnel understand their specific HSE responsibilities and that they are competent
- Maintain necessary knowledge of standards, legislation, codes of practise and other material, and ensure that such material is made available within the Company
- Consult with employees when making decisions that affect them
- Necessitate suppliers to comply with the Company's HSE requirements
- Store, use and dispose of energy and materials efficiently and appropriately
- Publish SMART objectives and monitor, measure and analyse and publish data in order to continually improve HSE performance

Every Employee shall:

- Make themselves aware of the HSEMS requirements, and act accordingly.
- Take reasonable care of themselves and others who may be affected by their acts or omissions
- Use and not misuse, deface, remove or destroy anything provided in the interest of HSE
- Have the right and responsibility to stop the work at any time they are concerned about HSE
- Report all accidents, incidents, occupational diseases, near misses, unsafe practices or conditions
- Take part in initiatives and play an active role in the maintenance and improvement of the HSEMS
- Protect Company and Customer assets, reputation and the environment

The implementation of the policies and procedures described in this document and in the HSEMSM has the full commitment of Fugro GEOS' Executive Board of Directors and Top Management.

Signed

Jeff Coutts, Managing Director

Date..... 5th June 2007

Policy Review Date 4th June 2008

SM102: HSE MANAGEMENT SYSTEM

1.1 Definitions

Fugro Global Environmental and Ocean Sciences (Fugro GEOS) defines HSE as a condition that will not contribute to:

- A risk of injury
- A threat to our health or well-being
- Damage to the environment

Fugro GEOS has put in place measures to manage these matters.

Throughout the HSE Management System Manual, the following definitions shall apply:

- QMS Fugro GEOS Quality Management System
- QAM Fugro GEOS Quality Management System Manuals – current release, available via the Intranet
- HSEMS Fugro GEOS Health, Safety and the Environment Management System
- HSEMSM Fugro GEOS Health, Safety and Environmental System Manual, current release, available via the Intranet

1.2 Introduction to the HSE Management System

Fugro GEOS has a formal documented system for the effective management of health, safety and environmental issues. It focuses on the reduction of risk coupled with improved performance. The HSE Management System Manual has been developed, with input and assistance from Shell International Deepwater Services BV, and from those documents issued by our sister companies, Fugro Limited and Fugro-Geoteam Limited. All these documents follow the principles outlined in the E&P Forum document 6.36/210 “Guidelines for the Development and Application of Health, Safety and Environmental Systems”, OHSAS18001:1999 and ISO14001:2004.

Fugro GEOS is a member of the British Safety Council and as a member is committed to working towards Health, Safety and Environmental Best Practice.

The Fugro GEOS Health and Safety Management System is classed as a Level 2 document within the Company’s Quality Management System and is structured as follows with all HSE documents being available electronically to all staff on the Company’s computer network. Most documents are accessible via the Fugro GEOS Intranet. Site personnel are issued with a CD, which includes the most recent issue of the QAM and HSEMSM. Under this system, facilities exist to print hard copies of documents as required.

Levels of the HSE Management System

1st Level

Documents stating the Company's policy and objectives, which define the methods by which the Company shall comply with its statutory and self-determined duties. These are the 'SM'100 series documents within this manual.

2nd Level

Procedures developed for each activity, which affects the HSE integrity of the Company's operations. The procedures define responsibilities and actions to be taken to minimise risk to the health and safety of personnel, damage to the environment and harm to wildlife. The documents may be contained within this manual (e.g. the SP200 (field and general procedures) and SP300 (office and general procedures) series of documents) or as appendices to this Manual (e.g. the USA-Specific Safety Procedures) or as Technical Instructions.

3rd Level

Records and forms developed to support document compliance with the HSEMS together with reference documents prepared by other organisations and interface documents linking the Company's HSEMS to those of other organisations. Records and Forms may be within this document (e.g. the SP400 series documents) or without this manual (e.g. DSE Self Assessment, HIRA template, JSO form etc). The Fugro GEOS Accident Book is also designated a Level 3 document.

The various levels of documentation given above are complemented by specifications, drawings, sketches and additional forms as appropriate. If there is a conflict between two documents, the higher level document shall take precedence. If there is a conflict between documents of the same level, a senior manager, as defined in the QAM shall resolve the conflict. The nature and resolution of the conflict shall be raised at an HSE Committee Meeting to enable the HSEMSM to be modified if necessary.

1.3 Regulatory Compliance

The HSEMS is based upon compliance with, primarily, UK law and, although most of these laws do not have jurisdiction outside UK continental shelf waters, Fugro GEOS conducts its operations according to the principles of these regulations. The following primary UK regulations apply to the Company's operations:

- Health and Safety at Work Act 1974.
- Management of Health and Safety at Work Regulations 1999.
- Workplace (Health, Safety and Welfare) Regulations 1992.
- Health and Safety (Display Screen Equipment) Regulations 1992.
- Lifting Operations and Lifting Equipment Regulations 1998.
- Manual Handling Operations Regulations 1992.
- Personal Protective Equipment at Work Regulations 1992.
- Provision and Use of Work Equipment Regulations 1998.
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995
- The Health and Safety (First Aid) Regulations 1981

- Control of Substances Hazardous to Health Regulations 1999
- Control of Noise at Work Regulations 2005
- Control of Vibration at Work Regulations 2005
- Electricity at Work Regulations 1989
- Offshore Safety Act 1992
- Personal Protective Equipment 2005
- Factories Act 1961
- Guide to the Health and Safety (Consultation with Employees) Regulations 1996
- Safe use of lifting equipment. Lifting Operations and Lifting Equipment Regulations 1998
- Workplace (Health, Safety and Welfare) Regulations 1992 (as Amended by the Quarries Miscellaneous Health and Safety Provisions Regulations 1995).

The following primary US Regulations also apply, when working in that jurisdiction:

- Occupational Safety and Health Act 1970
- 29 Code of Federal Regulations Part 1910 – General Industry
- 29 Code of Federal Regulations Part 1926 – Construction Industry (certain sub-parts)
- 49 Code of Federal Regulations Part 40 – Transportation Workplace Drug and Alcohol Testing

(Please refer to USA Appendix to this Manual for further details)

The following primary Singapore Regulations also apply, when working in that jurisdiction:

- The Workplace Safety and Health Act 2004
- Factories Act (Chapter 104) 1973

The following primary Norwegian Regulations also apply, when working in that jurisdiction:

- Internal Control Regulations
- Worker Protection and Working Environment Act 1977

In addition, many other Codes of Practice / Regulations relating to offshore / vessel work may be relevant. Some particular examples include:

- Offshore Installations and Pipeline Works (Management and Administration) Regulations 1995
- International Convention for Safety of Life at Sea (SOLAS)
- International Convention for Prevention of Pollution from Ships (MARPOL)

The above references shall be taken to include any updates and/or amendments to the regulations. These lists are not exhaustive.

Fugro GEOS shall comply with all relevant national and international health, safety and environmental protection legislation. In particular, when foreign flag vessels are used, the Company shall be bound by

and comply with the legislation relevant to that vessel. Where this conflicts with the Health and Safety at Work Act 1974, the latter should take precedence where practical.

Where appropriate, the Company shall ensure vessel owners from whom it charters vessels comply with the relevant regulations and have management systems which follow the International Management Code for the Safe Operation of Ships and for Pollution Prevention (International Safety Management (ISM) Code).

The above references shall be taken to include any updates and/or amendments to the regulations. These lists are not exhaustive.

Fugro Geos has arranged copies of legal requirements, and statutory requirements. Company has systems to arrange, as required, industry codes of practice, agreement with any public authority or non-regulatory guidelines, to which it subscribes or may subscribe.

Fugro Geos in the UK use Croner and the HSE website for identifying and accessing the legal and other OH&S requirements that are applicable to it, also keeping its information up-to-date.

1.4 Implementation of the HSEMS

1.4.1 HSE Planning

Fugro GEOS believes that implementation of HSE planning is essential to enable it to meet its stated HSE goals and objectives. To achieve this, HSE planning has been introduced at various stages of its operations. This includes, but is not limited to:

- Annual HSE Plan.
- Annual review of the HSEMSM, including the Policy Statement
- Client and / or subcontractor interface documents, including Outline Project Quality Plan
- Project Specific HSE plans, including Emergency Response Plan
- Hazard Identification and Risk Assessment

The preparation of project HSE plans shall be carried out in accordance with SP221. The format of the plans will vary to suit circumstances. Hazard Identification and Risk Assessment shall be carried out in accordance with SP228.

1.5 Management of Change / Document Control

1.5.1 General

Fugro GEOS operates in a dynamic and complex environment where change is inevitable in its business environment, its areas and types of operations and the technology it uses. Each change introduces risk to the organisation, which may impact on HSE performance. Fugro GEOS implements procedures to identify, monitor and control change to ensure that risk is kept at an acceptable level.

This is primarily achieved by using the following methods and feeding the results back into the HSEMS to allow improvements or changes to procedures to be made, as applicable:

- Annual review of HSEMSM
- Hazard Identification, Risk Assessment and Control.
- HSE Incident Reporting. In particular, emphasis is placed on the reporting of all accidents or incidents, no matter how trivial they may seem, in order that preventative actions and / or improvements can be taken before a more serious incident occurs.

With regard to specific changes during the life of a project, the following Change Control procedures apply. As stated in the QAM, any major revision of the contract, such as a change in Project Manager or Scope of Work etc., must be agreed formally between the parties and result in the issue of a revised Outline Project Quality Plan (OPQP), which shall be copied to the project team, including the Client. The Operations Manager/Divisional Director who approved the original OPQP shall approve the revised OPQP.

1.5.2 Change Control – Scope of Work

Occasionally during a project, the Scope of Work needs to be re-evaluated due to unforeseen events. If the Client requests a change to the Scope of Work, the Project Manager shall seek advice from the Divisional Director and / or Contracts Manager / Commercial Director before making any commitment to the Client. Similarly, if Fugro GEOS wishes to implement a change in the Scope of Work, it must be discussed and agreed with the Divisional Director and / or Contracts Manager / Commercial Director before making any offer to the Client. Any changes to the Scope of Work must be agreed in writing with the Client and, if appropriate, a Variation Order should be requested from the Client.

1.5.3 Change Control – Documentation and Retention Scheduling Health and Safety Records

Operational standards and procedures are continually undergoing evaluation and change to meet Client, operational and management needs. However in order to facilitate change in an orderly manner Fugro GEOS has a controlled process in place (**see QAM**). Recommendations for standard and procedural changes are submitted to the HSE Manager for evaluation and incorporation. A member of Top Management must give formal approval before release.

The Fugro GEOS HSE Manual is available to all personnel via the Intranet or a controlled CD copy.

Electronic updates to the manual are automatic, and all staff will be advised by Email when a change has been made.

HSE Records are retained for periods described below:

Retention Scheduling Health and Safety Records

Introduction

The following guidance is aimed at both Human Resources Manager and Health and Safety Managers in Fugro Geos Ltd. It reflects the current state of the law. The HSE manger will endeavour to update the guidance in the light of new legislation but responsibility for checking on more recent enactments rests with the reader.

Because health and safety records may be kept in different parts of an organisation, communication across the organisation and between the Human Resources Manager and Health and Safety Manager is essential to ensure consistency in record keeping and disposal.

Background

The legislation underpinning health and safety in the United Kingdom is the Health and Safety at Work Act 1974. Implementation of the requirements of

- Safety Representatives and Safety Committees Regulations 1977
- Electricity at Work Regulations 1989
- Noise at Work Regulations 1989
- Management of Health and Safety at Work Regulations 1992
- Workplace (Health, Safety and Welfare) Regulations 1992
- Manual Handling Operations Regulations 1992
- Health and Safety (Display Screen Equipment) Regulations 1992
- Provision and Use of Work Equipment Regulations 1992
- Control of Substances Hazardous to Health Regulations 2005
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995

The Social Security Act 1975 is also relevant to health and safety record keeping. Section 88(b) is the enabling provision under which relevant regulations are issued, such as the Social Security (Claims and Payments) Regulations 1979 and the Social Security (Industrial Injuries)(Prescribed Diseases) Regulations 1985.

Other relevant legislation includes:

- Factories Act 1961
- Employers' Liability (Compulsory Insurance) Act 1969
- RRO Act 2005

Records

Records relating to health and safety matters may be held by different parts of the organisation.

For example, reports of accidents or incidents affecting Health and safety records are either required to fulfil a statutory obligation or may be needed as a prerequisite to carrying out certain activities. Failure to hold valid documents may attract the penalties of prosecution, improvement or prohibition notices. For example, records of training on the use of dangerous machinery must be kept. Failure to provide documentary evidence of such training may attract the issue of an improvement notice. Similarly the failure to maintain a register of dangerous substances under the Control of Substances Hazardous to Health (COSHH) regulations may lead to a prohibition on using such substances. Inability to provide appropriate and accurate documentation such substances. Inability to provide appropriate and accurate documentation in the event of civil litigation may lead to heavy compensation payments. There are certain statutory requirements to keep particular information, for example, safety monitoring data under the Management of Health and Safety at Work Regulations 1992, and recording accidents under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995. Increasingly there has been a move to permit employers to design their own forms for use, as long as they contain certain data (such as accident reports). This relaxation has increased opportunities for the use of computers in the collation, storage and retrieval of records.

Statutory Forms and Records

Some statutory requirements specify the maintenance of certain inspection records or the provision of certain notification forms. Inspection records include those relating to the maintenance of ventilation systems, to control substances hazardous to health in the workplace, fire safety checks, and inspection of machinery and equipment.

Statutory notification forms include those required to advise enforcing authorities about certain operations or circumstances - for example, notifications of accidents, diseases and dangerous occurrences - and would include certificates issued by enforcing authorities, such as licences for the storage of certain substances.

Procedural Records

Procedural records may be specified by regulations but these relate more to the management of health and safety than to reporting requirements. These records include an organisation's health and safety policy statement and risk assessments. Other records might include safety procedures, manuals and copies of instructions or information supplied to employees.

Pre-employment and Employment Records

These include copies of pre-employment questionnaires and medicals relating to health and safety. Pre-employment screening has become of greater importance in ensuring that appropriate consideration is

made of individual factors which may affect whether someone can carry out a specific task without risk to their health and safety. This consideration is required under the Management of Health and Safety at Work Regulations 1992. Employment records can contain details of health and safety training provided, information supplied or even personal protective equipment issued to particular employees.

Medical Records

These include records required to be maintained in relation to medical surveillance provided, for example, under the Management of Health and Safety at Work Regulations, Control of Substances Hazardous to Health Regulations or those regulations relating to lead and asbestos at work.

Regulations or those regulations relating to lead and asbestos at work. These records may also contain details of audit carried out in connection with noise at work or information relating to the records of eye and eyesight tests carried out under the Health and Safety (Display Screen Equipment) Regulations

Recommendations

Reasons for keeping health and safety records include:

- the records are documents required by legislation
- the operation/process may be used again and records are needed to ensure safety
- they may be evidence in case of litigation or prosecution
- to demonstrate the company's history of safety management
- to identify long-term trends
- to plan maintenance
- to identify training needs
-

Only a small number of categories of records, including medical surveillance, accident and waste disposal records, have to be kept for a specified time. The most significant are listed in the table below. In some cases, for example the Noise at Work Regulations 1989, assessment records should be kept until a further assessment of the hazard is made.

Litigation

With the exception of the legal requirements summarised in the table below, the primary reason for keeping health and safety records is to ensure that the employer is well placed to protect the safety of the staff and public, but beyond this a powerful reason is the management of an employer's exposure to litigation. Under the Limitation Act 1980, personal injury actions must be commenced within three years of the injury occurring. This gives a clearly defined time to keep records associated with an injury.

However, for some complaints, such as asbestos and noise damage, the employee may not realise he or she has contracted it until several years after exposure. In such cases the Act allows the claim to be brought within three years of the date that the employee had knowledge of the disease or injury. This,

therefore, extends the time some records may have to be kept and it is recommended that relevant records be kept for 40 years for such incidents. Evidence that may be needed to fight such a claim include:

- relevant risk assessments - these are formal surveys of the workplace (under the Management of Health and Safety at Work Regulations 1992) to assess any risks to health and safety to which staff and others are exposed; reviews and updates should be included
- safe operating procedures and safe systems of work
- effectiveness of controls such as the monitoring of noise and light levels
- maintenance of controls and other machinery
- medical surveillance, including pre-employment medicals and audiometry, and biological monitoring
- training
- safety inspections, including checks to confirm that safe operating procedures are being used and personal protective equipment is being worn
- records of who else worked on the process and who their supervisors were
- personal protective equipment specification, training, storage and maintenance arrangements
- information on other employees who have suffered disease or injury as a result of the process
- knowledge of when the disease or injury was established

Long-term administrative information

At some time it may be necessary to demonstrate that there is a history of effective safety management, for example as part of a defence against litigation or criminal prosecution, or just to show a Health and Safety Executive inspector. There is a case for keeping records after they have been updated or re-assessed just to provide information on long-term trends. Exposure records could be of value for epidemiological investigations into the effect of a substance. A comparison of old and new noise assessments might reveal an increase in noise emission from a machine, suggesting a need for maintenance or repair.

Training records need to be kept, reviewed and used to identify the need for refresher courses. They should normally be filed with personnel records.

Schedule of Legislation with Retention Stipulation

The following table gives details of those records where there is a statutory requirement to keep records for a specified period. Every attempt has been made to include all such health and safety records but

readers are advised to check relevant legislation and consult with Health and Safety Managers before disposing of other similar records.

Act or Regulation	Record	Disposal
<p>Control of Substances Hazardous to Health Regulations 2005</p>		
<p>Reg 7 (10) - special provision relating to biological agents</p>	<p>List of employees exposed to group 3 and 4 biological agents (see the Regulations)</p>	<p>10 years after last Exposure</p>
<p>Schedule 9 - special provision relating to biological agents</p>	<p>Where exposure may lead to a disease many years later</p>	<p>40 years after last exposure</p>
<p>Reg 9 - maintenance, examination and test of control measures</p>	<p>Examination and testing of control equipment and repairs carried out as a result</p>	<p>5 years</p>
<p>Reg 10 - monitoring exposure at the workplace</p>	<p>Exposure to hazardous substance at the workplace: a) general exposure b) personal exposure of identifiable employee</p>	<p>5 years</p>
<p>Reg 11 - health surveillance of employees who are, or are liable to be, exposed to a substance hazardous to health</p>	<p>Health surveillance, including medical reports</p>	<p>40 years from date of last entry</p>
<p>Factories Act General Register Order 1973</p>	<p>General Register (Form F31, recording details relating to the factory, such as name and address of occupier, nature of work, fire certificate, etc)</p>	<p>2 years after date of last entry</p>

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995	Reportable injuries, diseases and dangerous occurrences	3 years
Social Security (Claims and Payments) Regulations 1979	Accident book (form BI 510)	3 years from date of last entry
Control of Lead at Work Regulations 1980	Maintenance of control measures	5 years from date at which entry was made
Reg 8(4) - maintenance, examination and test of control measures	Air monitoring	5 years
Reg 9(5) - monitoring exposure	Medical surveillance	40 years
Reg 10(3) - health surveillance of employees exposed, or liable to be exposed, to lead	Health surveillance (including medical reports)	40 years after last Record
Control of Asbestos at Work Regulations 1987		
Special Waste Regulations 1996	Consignment note	3 years
Environment Protection (Duty of Care) Regulations 1991	Consignment note (controlled waste)	2 years
Employee liability	Insurance Certification	40 years

1.5.4 Change Control – Personnel

Personnel changes often occur during projects, such as a change in the field team for an offshore visit. Other changes may be due to human resource or HSE issues. The Client is notified of all personnel changes, including the reason. The Project Manager and Divisional Director approve and implement routine personnel changes. Human resource and HSE issues and any recommendations for personnel

changes are approved and implemented by the Divisional Director in consultation with the HR Manager or HSE Manager.

1.5.5 Change Control – Equipment

Modification or exchange of equipment may be required once a project starts due to unforeseen events. For example, equipment may be lost while at sea or require modification after a project begins due to unique circumstances at project locations. Recommendations for equipment changes and/or modifications are submitted via the Party Chief and/or Project Manager to the Engineering Manager and Divisional Director for evaluation and approval, in consultation with the Client, before implementation by the Project Manager.

1.5.6 Change Control – Offshore Operations

Whilst offshore, a Party Chief does not have direct access to normal control measures for control of change. The Party Chief is therefore designated under the QA Systems to make changes to methodology and procedures without reference to the Project Manager, Operations Manager or Technical Reviewer. Wherever possible, such changes should be discussed with the Operations Manager prior to implementation. Such changes shall be recorded and passed back to the Project Manager via the Post Site Debrief System.

No Change, which requires a formal variation order to Contract, may be undertaken without reference to the appropriate authority.

1.6 HSE Procedures

All Fugro GEOS' operations shall be carried out in accordance with its HSE Procedures. These procedures may be accessed via this manual and these guidelines, rules and considerations must take precedence over any operational requirements or instructions that are contrary to accepted safe working practices. A member of the Company's Management Board must resolve any conflict.

Fugro GEOS has performed an overall assessment of the hazards that may be experienced at work, the individuals that may be affected, the control measures imposed and the resultant residual risk. The Initial Risk Assessment may be found at SM104.

1.6.1 Health, Safety and the Environment

Medical Examinations

It is Company policy that all personnel should be medically fit for the work to be undertaken and submit to medical examinations where appropriate. All personnel who undertake fieldwork shall have a current offshore medical certificate. Fieldwork includes land operations, near-shore and offshore vessel operations, and rig and platform work.

The UKOOA Recommended General Medical Standards of Fitness for Designated Offshore Employees (UKOOA Medical) is the Company standard. For work in non-UK areas, medical examinations to local national standards may be required. Drug and alcohol testing may also be required and shall be undertaken in accordance with Procedure SP222, Drug & Alcohol Policies.

Certification of medical fitness is not required for office personnel but the Company shall offer medical examinations to any office-based employee upon request, in accordance with the renewal periods required for UKOOA medicals.

In addition, Fugro GEOS shall provide health surveillance examinations as required. These can include eye tests for those employees who are display screen equipment users as defined by the Health and Safety (Display Screen) Regulations 1992.

First Aid Facilities

Fugro GEOS shall provide first aid facilities at all its work locations. Adequate first aid kits shall be provided at all times and their locations shall be clearly identified and made known to all employees. Treatment of accidents at work shall be recorded in the Accident Book.

An appropriate number of employees shall be provided with specialist first aid training, if appropriate. This shall be to the standard required by the appropriate enforcing agency or regulations. Training shall be refreshed accordingly.

1.6.2 Health, Safety and the Environment

Safe Working Practices

Onboard vessels in particular, personnel live and work close to potentially dangerous materials, systems and machinery in an environment where fire and extreme weather are a constant threat. Safe working practices and specific HSE procedures must be followed at all times and safety drills practised.

Provision of Work Equipment

Fugro GEOS shall ensure that all work equipment provided complies with the requirements of the Provision and Use of Work Equipment Regulations 1998. All equipment shall be maintained in accordance with the appropriate Technical Instructions.

In addition, the Company shall ensure that HSE factors are taken into account during the design and/or installation of equipment or deployment of moorings, and that competent persons are employed to conduct this work. The Company shall incorporate features to enhance the safety of its operations as far as is reasonably practicable.

Permit-to-Work

There are many operations where the action of one person may inadvertently endanger another, or when a series of actions need to be taken to ensure the safety of those engaged in a specific operation. In all instances, it is necessary to identify hazards and then to ensure they are eliminated or effectively controlled.

A formal permit-to-work is not considered necessary. However, Procedure SP229, General Marine HSE Procedures outlines procedures to be followed for certain hazardous operations. In all cases, personnel shall work according to a Client's Permit-to-Work system when working at a Client's premises or installations, whether onshore or offshore.

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1.6.3 Health, Safety and the Environment

Working Environment

Fugro GEOS shall provide and maintain a safe and healthy working environment in accordance with the Workplace (Health, Safety and Welfare) Regulations 1992.

Environmental Protection

Fugro GEOS shall promote environmental protection in its operations and shall establish documented procedures for achieving this. In particular, all marine operations shall be conducted in accordance with Procedure SP229, General Marine HSE Procedure.

Material & Waste Management

As a first principle, Fugro GEOS shall endeavour to minimise the amount of waste generated by its operations. The aim is to use recycled material and components where appropriate and to introduce waste-free processes where possible. Waste materials shall be packaged for disposal in a manner to minimise the risk of pollution. Recognised specialists shall carry out disposal of all harmful substances (including chemicals used for onboard analysis of sediments, etc). The local fire service shall be kept appraised where appropriate.

Offshore, no pollutants (e.g. batteries) or waste material must be dumped, thrown or otherwise disposed of into the sea. All refuse and materials shall be safely disposed of in an appropriate manner.

Energy & Natural Resource Management

Fugro GEOS shall strive to eliminate unnecessary use of energy and natural resources. Environmentally friendly fuels and materials shall be used as far as is reasonably practicable. In the office environment, cost-effective solutions to heating and lighting requirements shall be encouraged. For vessel operations this shall include use of economic steaming speeds to minimise fuel consumption.

Interaction with Wildlife

Fugro GEOS recognises that it has an obligation towards wildlife protection and shall ensure that its operations are conducted in such a manner as to eliminate or minimise impact on wildlife. It also recognises that other organisations may depend on and have a legitimate right to harvest wildlife (e.g. fishing) for their livelihood and that it has an obligation to minimise interference with such activities.

Pre-survey planning shall include the identification of wildlife at risk and steps to be taken to minimise the impact of its operations, including keeping clear of designated avoidance areas where possible.

1.7 Emergency Procedures

1.7.1 General

Fugro GEOS shall establish documented emergency procedures at all work locations. They shall specify detailed responses, communication channels, management of response to an emergency, and follow up actions.

On a project basis and when appropriate, the Company shall prepare Project Specific HSE Plans and/or Emergency Response Plans linking its HSEMS to Clients, vessel owners and sub-contractors to ensure that the responsibilities and roles of the individual parties are known and that any potentials for conflict or misunderstanding are minimised or eliminated.

1.7.2 Emergency Drills

Drills shall be held regularly and shall be taken seriously by all concerned. For action plans to be effective all staff must be familiar with the safety and emergency procedures appropriate to their location.

Procedure SP227, Project Mobilisation & Operations defines the type and frequency of drills for offshore operations, and requires that a log of all emergency drills shall be maintained.

Emergency drills within the office shall be conducted on a six-monthly basis and a log maintained.

1.7.3 Fire, Safety & Life-Saving Equipment

The provision of adequate and appropriate fire, safety and life-saving equipment is an essential part of the Company's HSEMS. This equipment shall only be used during emergencies or drills and shall only be used for the purposes for which it is intended. Fire, safety and lifesaving equipment shall not be removed from its designated location for any purpose other than its authorised use, maintenance or test.

All employees shall report any deficiencies in equipment immediately to the HSE Manager or local HSE Representative.

1.8 Corrective & Preventive Action

Corrective and preventive action shall be taken at any stage of an activity to eliminate, or reduce to an acceptable level, risk to the health and safety of Fugro GEOS' employees and other persons for whom it is responsible, the risk of damage to the environment and harm to wildlife.

Corrective or preventive actions shall be documented and shall not be considered complete until the effectiveness of their implementation has been verified.

A formal Quality System Review form may be raised internally. It may either be raised as a result of an HSE audit or in response to an HSE problem identified in the normal course of business.

Any request for corrective or preventive action raised by a Client may also be processed in this manner.

Where, as a result of implementation of corrective or preventive action, a change is required in the HSEMS, the effectiveness of such a change shall be assessed by internal audit and reviewed in Management Review Meetings.

1.9 Visitors & Sub-Contract Services

1.9.1 Visitors

For reasons of health, safety and security, it is important that visitors to any Fugro GEOS office are not permitted to wander freely around the premises. In case of fire, it is imperative to know the number of persons in the building and their location.

Therefore, for all visitors Fugro GEOS will maintain a record of name, time of arrival and departure, and host. Reception and/or those responsible for visitors should ensure:

- Visitors enter their details in the 'Visitor's Book' on arrival and book out on departure.
- Visitors remain in the reception area until collected by their host.
- All accidents to visitors are reported to management without delay.
- Visitors read and comply with fire procedures.
- Visitors wear PPE (may be Company provided) where appropriate.
- Visitors comply with the Company's 'No Smoking' Policy.
- Visitors' cars are parked safely, in the designated areas, without causing an obstruction.

1.9.2 Sub-Contract Services

All purchases of products and services (including sub-contracting) which have a bearing on the HSE integrity of Fugro GEOS' operations shall be made in accordance with the Quality Manual, Section 5, Purchasing. This shall ensure that HSE factors are taken into consideration and given high priority during the supplier/sub-contractor selection process. Only approved suppliers/sub-contractors shall be used for the provision of products or services that have a bearing on this integrity.

Fugro GEOS recognises that vessel owners are the most HSE critical service suppliers and that close co-operation with owners is essential to ensure a healthy and safe working environment. Wherever possible, the Company shall promote a spirit of co-operation with vessel owners to establish common HSE goals and objectives.

Key elements of this process include, but are not limited to:

- Operational/project meetings between the Party Chief and the vessel master at which HSE is discussed.
- Provision of internal and Client HSE audit reports to owners.
- Conducting QA and HSE management system audits of vessels.

Where formal sub-contract services are to be employed, potential sub-contractors will be screened on their HSE awareness. Careful attention shall be paid to the sub-contractor's proposed work practices and plans to ensure that adequate attention will be paid to relevant HSE issues and appropriate standards maintained.

1.10 HSE Monitoring & Reporting

Fugro GEOS wishes to encourage a proactive approach to HSE matters and believes that effective monitoring is an essential pre-requisite. The Company's annual HSE Plan shall outline its proposed actions for the year ahead.

Formalised feedback on activities is defined in the QAM. This includes, but is not limited to, daily reports, weekly reports, debrief reports and handover notes and Incident Reports. Incident reporting and subsequent investigation and dissemination of information is carried out, as per SP225.

HSE meetings shall be held in accordance with SP327. The frequency of meetings will be appropriate to the location as defined in this procedure.

In addition, SP229, defines the additional requirement for toolbox meetings to be held at each shift change and before starting any significant operation.

Representatives of management, staff and sub-contractors shall attend office meetings. They shall be minuted and formal follow-up procedures shall be enforced.

All Fugro GEOS employees and its sub-contractors shall attend vessel meetings. The Client's Representative and vessel safety officer shall be invited to attend.

1.10.1 Internal Audit

Planned, systematic and documented audits shall be conducted on a periodic basis, in accordance with the QAM on all activities that have a bearing on the achievement of Fugro GEOS' QA and HSE objectives. The objectives of an internal audit shall be to:

- Determine the adequacy and effectiveness of the systems, practices, procedures and instructions established in accordance with the provisions of this manual.
- Provide an objective evaluation of compliance with established systems, practices, procedures and instructions.
- Assess the performance of processes that produce and control the products or services and the compliance of these processes with specified technical and quality requirements.

Audits shall be carried out on vessels prior to their acceptance for projects (See SP406). Office and workshop premises shall be audited on an annual basis.

Audits shall be conducted by appropriately trained personnel, preferably not having direct responsibility for the area being audited. Audit results shall be documented in reports to management who shall take prompt action to correct any deficiencies revealed and to preclude repetitions.

1.10.2 System Review

Fugro GEOS' HSEMS shall be subject to regular review by an HSE Committee whose members are selected from management and employees. These meeting shall be held on a regular basis, nominally every six months. Minutes of the meetings shall be published for all staff and shall form part of the HSEMS documentation.

1.10.3 Incident Reporting

Fugro GEOS' HSE procedures shall ensure that its operations are continuously monitored for HSE Incidents. Incidents shall be reported in accordance with Procedure SP225, Incident Reporting & Investigation.

Feedback on Incident Reports will be provided and the information they contain will be used to review and amend HSE procedures and guidelines as required.

1.10.4 Feedback on Performance

Fugro GEOS shall provide employees with feedback on its HSE performance on a regular basis. Reports shall also be provided to Fugro NV and other parties as required.

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SM103: RESPONSIBILITY FOR HSE

1.1 General Responsibilities

1.1.1 Employers

Employers must ensure, so far as is reasonably practicable, the health, safety and welfare at work of all his employees and to conduct his undertaking in such a way, so far as is reasonably practicable, that persons who are not employees are not exposed to any risks that may present. In addition, he must provide information relating to the protection of health and safety.

1.1.2 Employees

All employees have a legally enforceable duty to take responsible care of their own health and safety and that of others who may be affected by their acts or omissions, and for the protection of the environment. In addition, all employees shall co-operate as far as is necessary to comply with any duty or requirement imposed by the Company in accordance with the HSEMS and not to misuse or interfere with anything provided in the interest of health and safety.

Employees are encouraged to improve standards of health, safety and environmental protection and performance, and Fugro GEOS has established routines and processes to enable all employees to contribute to these improvements.

All employees shall acquaint themselves with the HSE management procedures, work instructions, forms and documents required to perform to the required standards. Disciplinary action shall be taken against any employee who shows wilful disregard for safe working practices and/or who endangers himself or others or risks environmental damage by failing to comply with the HSEMS.

All employees have a duty and responsibility to themselves and the other team members to STOP THE WORK at any time they are concerned about safety. Any employee's decision to stop a job on safety grounds shall be supported by the other team members and managers even if it turns out to be based on false reasoning. It is better to stop a job and re-assess it, than continue and risk an accident.

1.1.3 Nominated Representative

In all instances within the HSE Management System, where a specific individual is identified as responsible for a process, that person may nominate a representative to act on his behalf. However, the responsibility for the process shall remain with the defined responsible person.

1.2 Specific Responsibilities

Please also refer to the QAM for further details.



1.2.1 Offshore / Onshore and Office

Individuals holding specific operational responsibility are named in HSE Plans, which have been formulated for the individual projects. These are copied to all members of the site and emergency teams, Client and other interested parties, as appropriate. Responsibilities are as follows:

Title	Base Location	Responsibilities
Managing Director	Wallingford, UK	Ultimate responsibility for the Company's HSE performance.
Operations Director	Wallingford, UK	Reports to MD and defines inter-relationships of all personnel who manage, perform and verify work affecting HSE aspects of the Company's operations.
HSE Manager	Wallingford, UK	Responsible to the Directors for the administration and maintenance of the HSEMS, overseeing the investigation of all HSE incidents, development of HSE management procedures, co-ordination of HSE activities, advising and training all employees on their HSE obligations.
Human Resources Manager	Wallingford, UK	Available to provide advice to all directors and employees on any HR issue that may arise.
Operations Manager (& Project Manager)		Reports to the Operations Director and responsible for maintaining contact with field operations for both routine and emergency matters. Responsible for initiating actions in the event of an HSE emergency.
HSE Representative		In HSE role, reports to the HSE Manager and responsible for day-to-day HSE implementation in the regional office.
Party Chief (on vessel)		HSE representative on the vessel and for liaising with the Master and Client Representative and between ground and base office. Responsible for ensuring that all operations are conducted according to HSE procedures.
Party Chief (ashore)		Acting as co-ordinator for HSE matters relating to Fugro GEOS staff and sub-contractors, whilst ashore. Responsible for liaising between ground and base office and with the Client Representative (if appropriate).
All employees		Responsible for conforming to the HSEMS and all appropriate Regulations, for observing all HSE procedures, for reporting all non-compliance and for observing a duty of care towards themselves and all other persons who may be affected by their acts or omissions.
Sub-Contractor (if employed)		Reports to and responsible to the Party Chief for all HSE matters.

1.2.2 HSE Representation World-wide

The HSE Representation Appointments are as follows:

QA & HSE Manager Worldwide : M Denton

HSE Representatives:

Each Office has an HSE Representative, with whom members of that Office should consult in the first instance on matters pertaining to HSE.

Wallingford	:	M Denton
SeaCast, Wallingford	:	T Pitt
Glasgow	:	G Hamilton
Houston	:	J Crownover
Singapore	:	R Cowle
Abu Dhabi	:	P Framingham
Kuala Lumpur	:	Mohd. Nasir Abdullah
Trondheim	:	S Schjøberg
Sandnes	:	J Silgjerd

Committee Members:

UK Law requires employers to establish Health and Safety Committees, the function of which is to keep under review the measures taken to ensure the health and safety at work of the employees. The membership should be compatible with the adequate representation of the interests of all the employees. HSE Committees meet six-monthly.

In addition, Norwegian Law requires the setting up of a Working Environment Committee, whose function is similar to the above.

Membership is elected by Fugro GEOS personnel and names of the Representatives are recorded in the relevant Meeting Minutes.

SM104: OVERALL CONSIDERATION OF HSE HAZARDS

1.1 General Definitions

The following are terms and their definitions as given in this Safety Management Procedure. For further details on Hazard Identification and Risk Assessment procedure (including definitions) please refer to SP228.

- Hazard (H) A condition in the workplace, equipment or method, which has the potential to do harm
- Control Measures Precautionary devices, which reduce or eliminate the risk
- Risk (R) The probability of a hazard achieving its potential to do harm

1.2 Hazard Identification and Risk Assessment

Fugro GEOS has prepared an overall hazard identification and risk assessment (Hazard Register), in order to assess the risks to employees and others who may be affected by how we carry out our work or our business and to determine the appropriate control measures to use. The risk rating (RR) has been calculated using the table in SP228, with both hazards and risks being assessed on a scale of 1 to 5. The Hazard Register matrix is shown in the following sub-section. HSE Representatives are encouraged to report amendments deemed to be required to the HSE Manager for consideration and integration to the Hazard Register, or indeed any document within the HSE Management System, as appropriate.

Individual hazard identification and risk assessments shall be performed according to SP228, prior to carrying out any new tasks, and any assessments shall be reviewed (and amended, as appropriate) whenever significant changes have been made or there is reason to suspect that it is no longer valid. The Hazard Register may be used as a guide, when performing these tasks.

When new systems or work practices are to be introduced, the hazard identification and risk assessment process shall be carried out as part of the pre-planning process with the objective of removal or reduction of hazards as part of the design process. For geographical or environmental areas of operations, it shall form part of the project planning process. In all circumstances, the hazard identification process shall be documented in a format appropriate to the situation.

Control measures shall be suggested with reference to the hierarchy of control measures. That is to say, control measures should be considered in the following order:

- Elimination Does the task need to be done at all
- Substitution Can something else be used, which would cause less risk
- Engineering Can equipment be used to reduce the risk
- Segregation Can distance or barriers be used to prevent exposure
- Reduction in time / personnel exposure Limit the number of people or time spent
- PPE Suitable and sufficient PPE to the task
- Procedures Safe systems of work

Whilst a formal hazard identification process should reduce the possibility for unexpected hazards it does not preclude the need for constant vigilance.

1.3 Hazard Register

The Hazard Register is divided into two parts. The first part organises the hazard identification and risk assessment in to the following categories, where the type of hazard is the organising factor:

- 1 Physical
- 2 Biological / chemical
- 3 Working conditions

The second part organises the hazard identification and risk assessment in to the following categories, where the area in which the work is performed is the organising factor:

- 1 Site
- 2 Workshops
- 3 Office
- 4 Human behaviour
- 5 General (which refers to all work situations)

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1.3.1 Hazard Register by Hazard Type

REF	HAZARD	OPERATION OR TASK WHERE THIS HAZARD MAY BE EXPERIENCED	MAJOR CONCERNS	THOSE AT RISK	H	CONTROL MEASURES	R	RR	REFERENCES
PHYSICAL HAZARDS									
1	Manual Handling	Any work situation. Manual handling involves lifting, pulling, pushing, carrying, moving or restraining of a load	Musculo-skeletal Injuries (whole range) Damage to equipment	Fugro GEOS Others	3	Training. Use of proper technique. Use of mechanical aids. Individual's capability. Good housekeeping and work layout. Reduction in weight / bulk of load	2	6 – Low	Manual Handling Regs 1992 SP229
2	Shocks & Vibrations	None over which Fugro GEOS would have control			1		1	1 – Low	
3	Noise	Use of power tools in the WW environment. Many situations offshore, which are not controlled by FUGRO GEOS	Hearing impairment	FUGRO GEOS Visitors Others	2	Elimination of noise pollution at base office. Segregation in WW area. Provision of hearing protection as per PPE Assessment – Use hearing protection where advised to so do and where Db(A) >85	2	4 – Low	Noise at Work Regs 1989. PPE Regs 1992 PPE Assessment
4	Radiation	Maintenance of Metocean Sensors Use of microwaves Working in sunlight	Damage to skin and eyes. WCS – melanoma	FUGRO GEOS Others	2	Competent persons only. Avoid looking into laser. Only use equipment in good working order that has been PAT tested by a competent person. For any piece of work equipment, all users must check their equipment prior to use Slip, slap, slop. Eye protection. Reduce time / personnel exposure	2	4 – Low	SP323 PPE Assessment
5	Compressed Air & Diving	Persons working under water.	Many and varied	Sub-contractors	3	Medically fit, suitably qualified, competent persons only. Well-maintained equipment and records. Pre-dive safety plan Fugro GEOS would normally sub-contract out this type of work.	2	6 – Low	Diving at Work Regs 1997 SP232 29CFR1910 subpart T
6	Underground Work	None over which Fugro GEOS would have control			1		1	1 – Low	

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REF	HAZARD	OPERATION OR TASK WHERE THIS HAZARD MAY BE EXPERIENCED	MAJOR CONCERNS	THOSE AT RISK	H	CONTROL MEASURES	R	RR	REFERENCES
BIOLOGICAL / CHEMICAL HAZARDS									
7	Infectious Diseases	Any work situation, most notably working abroad. Infectious diseases are transferred by various vectors and routes Blood borne pathogens	Various results.	FUGRO GEOS Visitors Others First Aiders	3	Persons travelling abroad are passed medically fit and given suitable advice (MASTA / FCO / GP) regarding disease prevention and control. Relevant preventative medicines are taken. Infectious diseases are also passed around in normal situations (e.g. colds and flu). Persons should avoid contaminating others First aiders are trained and provided with protection. Any body fluids should be handled and treated as though they are infectious	2	6 - Low	CoSHH Regs 1999 SP234, SP236 29 CFR 1910.1030 US Appendix
8	Toxic Chemicals	Office WW Site	Variouly hazardous to persons / animals / environment. Also, some may be flammable	FUGRO GEOS Others Visitors	3	CoSHH Assessment performed. Persons must use control measures identified as necessary. Access to CoSHH Manual and MSDS for substances is open. There are no substances with a high residual risk Risk assessment performed by sub-contract cleaners. Cleaning is carried out at the end of the working day. Cleaner's materials and equipment are stored appropriately.	2	6 - Low	CoSHH Regs 1999 EH40 2002 SP329 Regional CoSHH Manuals Marchants
9	Mercury	None over which Fugro GEOS would have control			1		1	1 - Low	
10	Antimitotic Drugs	None over which Fugro GEOS would have control			1		1	1 - Low	
11	Pesticides	Base office gardens	Allergic reactions or other physical or environmental impairments	Sub contractors	2	Risk assessment performed by sub contract gardeners, including CoSHH assessment. Gardener's materials and equipment are secure and removed from site after each visit. Air conditioning in offices allows for windows to remain closed	3	6 - Low	CoSHH Regs 1999 City Landscape
12	Carbon Monoxide	None over which Fugro GEOS would have control			1	General awareness of the dangers of CO poisoning	1	1 - Low	
13	Lead	None over which Fugro GEOS would have control		Expectant mothers	1	General awareness of the dangers of lead poisoning	1	1 - Low	Control of Lead 1998

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REF	HAZARD	OPERATION OR TASK WHERE THIS HAZARD MAY BE EXPERIENCED	MAJOR CONCERNS	THOSE AT RISK	H	CONTROL MEASURES	R	RR	REFERENCES
WORKING CONDITIONS HAZARDS									
14	Facilities	Any work situation	Unsuitable conditions leading to dissatisfaction and / or health problems	FUGRO GEOS Visitors	2	Adequate facilities provided, specifically in relation to legal requirements. Fire Risk Assessment and Audits performed regularly Risk assessments performed before work is carried out to ensure provision of suitable arrangements etc	2	4 - Low	Workplace HSw Regs 1992 HSEMSM and QAMSM 29 CFR 1910 subpart J
15	Working Hours & Fatigue	Any work situation	Stress, fatigue, poor health	FUGRO GEOS	1	Preventive measures include proper planning of tasks and individual's workload Staff are encouraged to talk with their Line Managers about their situations	2	2 - Low	Working Time Directive QAMSM and HSEMSM
16	Stress & Violence	Any work situation	Stress, fatigue, poor health	FUGRO GEOS	3	Preventive measures include proper planning of tasks and individual's workload. Also, violence is not tolerated Staff are encouraged to talk with their Line Managers about their situations	2	6 - Low	MHSW Regs 1999 SP331 QAM 11
17	Smoking	None in the working environment	Respiratory difficulties Fire hazard	FUGRO GEOS Visitors Others	2	Smoking is not allowed on company premises Staff who smoke are encouraged to give up	2	4 - Low	Workplace HSW Regs 1992 SP223
18	Display Screen Work	Mostly in the office scenario, as persons who use DSE on a regular basis may be classed as users and be at risk	Work related upper limb disorders, eye strain, fatigue and mental stress	FUGRO GEOS	3	Training. Provision of information. DSE self-assessments. Provision of DSE aids. Encouragement to take breaks and exercise regularly. Correct posture and positioning DSE Self assessments are reviewed as necessary	1	3 - Low	HSE (DSE) Regs 1992 SP325
19	Working Alone	Out of hours work in the office. Rarely on site	No one to assist in the case of an emergency	FUGRO GEOS Sub-contractors	2	Working alone is avoided as far as is reasonably practicable. On site, it is recommended that at least 2 persons work together It is the everyone's responsibility to take care of themselves and others	1	2 - Low	MHSW Regs 1999

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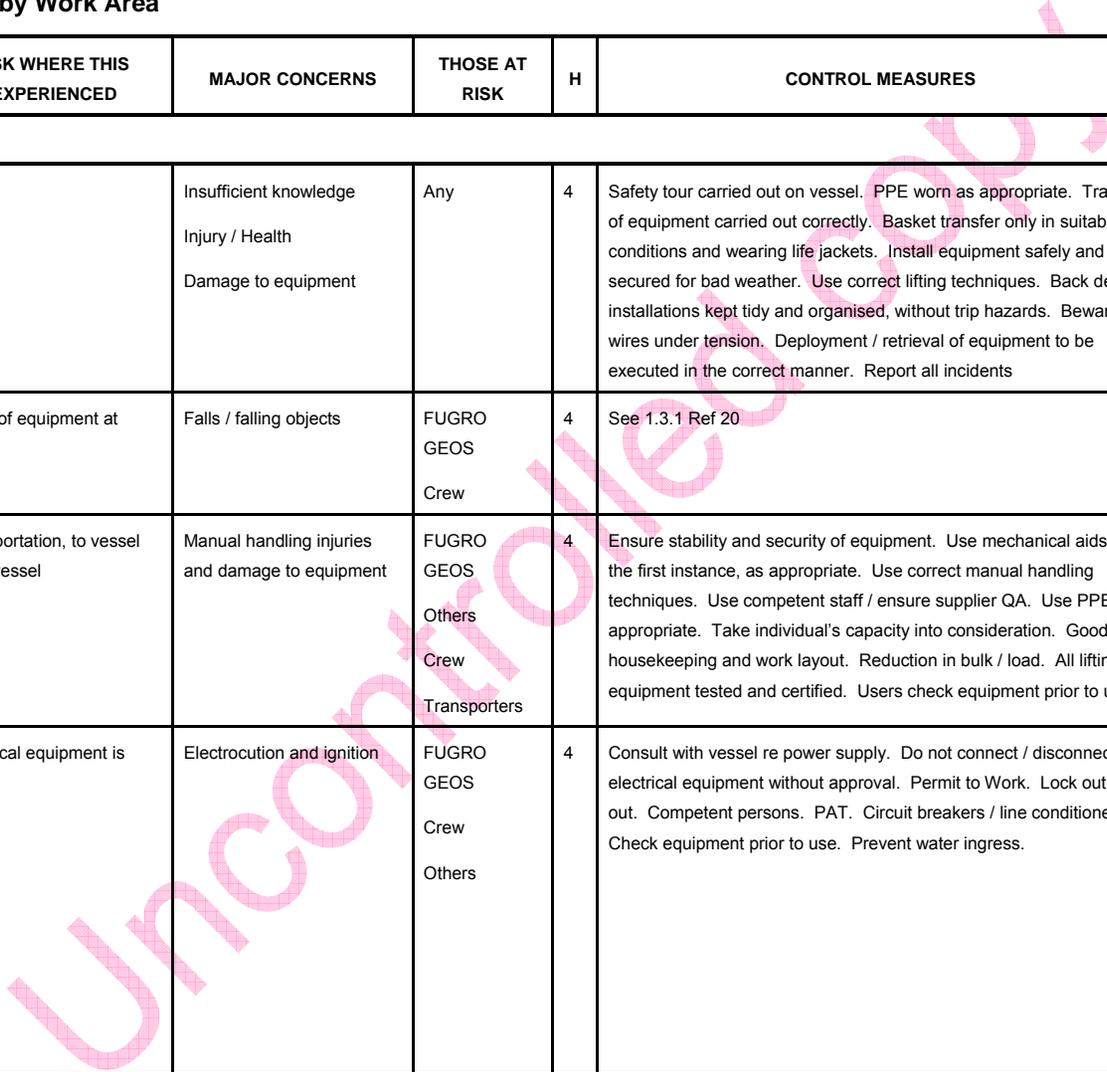
REF	HAZARD	OPERATION OR TASK WHERE THIS HAZARD MAY BE EXPERIENCED	MAJOR CONCERNS	THOSE AT RISK	H	CONTROL MEASURES	R	R/R	REFERENCES
20	Working at Height	Any work situation that is carried out above 2m from level	Fall or falling objects from height	FUGRO GEOS Others	4	Training. Fall arrest measures. Proper planning of task prior to carrying it out. Well maintained equipment and records. Never work alone. Check equipment Persons required to work at height will have undergone at the minimum a basic awareness training	1	4 – Low	CHSaW Regs 1996 PPE 1992 LOLER 98 SP235 29 CFR 1926 subpart M
21	Travelling	Travelling on company business	Accident or damage to vehicle. Injury to persons. Loss of belongings	FUGRO GEOS	4	Proper planning. Good pre-site brief. Use of reputable car / flight (etc) providers. Provision of all precautionary measures necessary. Personnel awareness. Use of Go / No Go form. Project Safety Plan Defensive driving course	1	4 – Low	Highway Code SP234 49 CFR Part 40
22	Protective Equipment	Any hazardous operation that must be mitigated with the use of PPE / guarding or mechanical aids	Injury and / or damage to equipment.	FUGRO GEOS Others	2	Risk assessment would identify the control measures that are required for a given situation, with the hierarchy of control measures adopted and applied. Equipment must be maintained, used, stored, checked, replaced appropriately Persons are advised of their responsibilities under the HSW Regs, most notably not to interfere with anything provided in the interests of health and safety	2	4 – Low	Various, notably MHSW and HSW Regs SP228 29 CFR 1910 subpart I
23	Nutrition	During working hours	Inability to perform task suitably and efficiently. Dehydration, fainting and general incapacitation	FUGRO GEOS Others	2	Ensure adequate and suitable microbe-free nutrition is consumed, including water. Drug and alcohol policy in place Breaks from work are encouraged to prepare and consume adequate nutrition	1	2 – Low	Workplace HSW Regs 1992 SP222

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1.3.2 Hazard Register by Work Area

REF	HAZARD	OPERATION OR TASK WHERE THIS HAZARD MAY BE EXPERIENCED	MAJOR CONCERNS	THOSE AT RISK	H	CONTROL MEASURES	R	RR	REFERENCES
SITE HAZARDS									
1	General	Site operations	Insufficient knowledge Injury / Health Damage to equipment	Any	4	Safety tour carried out on vessel. PPE worn as appropriate. Transfer of equipment carried out correctly. Basket transfer only in suitable conditions and wearing life jackets. Install equipment safely and secured for bad weather. Use correct lifting techniques. Back deck installations kept tidy and organised, without trip hazards. Beware of wires under tension. Deployment / retrieval of equipment to be executed in the correct manner. Report all incidents	1	4 – Low	Various regulations, inc. HS at Work Act OSH Act, OSHA 2232 46 and 29 CFR USCG HSEMSM
2	Climbing masts	Installation / maintenance of equipment at height, on board vessels	Falls / falling objects	FUGRO GEOS Crew	4	See 1.3.1 Ref 20	1	4 – Low	See 1.3.1 Ref 20
3	Transferring equipment	From warehouse, to transportation, to vessel and moving it around the vessel	Manual handling injuries and damage to equipment	FUGRO GEOS Others Crew Transporters	4	Ensure stability and security of equipment. Use mechanical aids, in the first instance, as appropriate. Use correct manual handling techniques. Use competent staff / ensure supplier QA. Use PPE, as appropriate. Take individual's capacity into consideration. Good housekeeping and work layout. Reduction in bulk / load. All lifting equipment tested and certified. Users check equipment prior to use.	1	4 – Low	SP229 MH Regs 1992 LOLER 98 OSHA 2232
4	Electrical	Any situation where electrical equipment is used	Electrocution and ignition	FUGRO GEOS Crew Others	4	Consult with vessel re power supply. Do not connect / disconnect electrical equipment without approval. Permit to Work. Lock out / Tag out. Competent persons. PAT. Circuit breakers / line conditioners. Check equipment prior to use. Prevent water ingress.	1	4 – Low	SP323 US Appendix



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REF	HAZARD	OPERATION OR TASK WHERE THIS HAZARD MAY BE EXPERIENCED	MAJOR CONCERNS	THOSE AT RISK	H	CONTROL MEASURES	R	RR	REFERENCES
5	Poor vessel maintenance	Chartering and using unfamiliar vessels	Unsanitary conditions. Slip, trip, falls. Emergency procedures	FUGRO GEOS Crew Client Rep	4	Vessel audit. Check seaworthiness of vessel prior to sailing. Ensure suitable emergency equipment and procedures. Vessel induction. Awareness of minor hazards. Remove / clean up / cover slip/trip/fall hazards. Do not run. Exercise caution	1	4 – Low	SP406 SP227
6	Personnel transfer	Boat to boat Boat to Platform / Platform to Boat Basket transfer Helicopter transfer Dock to boat / Boat to dock transfer	Man overboard Other injury	FUGRO GEOS Crew Client Rep	4	Ensure both Captains are satisfied that the conditions are suitable for bringing the vessels together. Transfer only when conditions are suitable, when individuals are happy to do so and on opposite side from MOB boat. Crew members available to assist. Wear PPE In addition, advise superintendent of intention to transfer In addition, basket transfers only permitted when transferring from vessel to rig. When more than one person is transferring, spacing should be such that the basket remains level. A maximum of 4 persons may transfer at any one time. Face inwards, arms thru' mesh Follow procedures given at the safety briefing. Wear PPE. Secure all loose, lightweight items. Carry long items horizontally. Await Pilot's signal before boarding. Never pass near the tail rotor. Always follow instructions. Read the safety literature. Know emergency procedures Use gangplank and handrail. Tread carefully. Sufficient illumination	1	4 – Low	SP229 HUET
7	Wires under tension / handling ropes and wires	Deployment and recovery of equipment. Other wires / ropes as may be on the vessel	Manual handling / crush / whiplash / slip/trip/fall injuries. Loss / damage to equipment	FUGRO GEOS Crew Others	4	Competent persons. Do not stand behind / straddle / cross lines under tension. Check splicing, clamping, jointing before use. Keep all body parts clear of loops / bites / coils / line of recoil etc. Wear PPE. Ensure firm footing. Be aware of what is going on in the vicinity. Pass ropes hand over hand, not through. Ensure responsibilities are known. Check equipment prior to use. Ensure SWL is not exceeded. Ensure all lifting gear is certified. Protect equipment from bouncing, crushing, spinning, swinging, dragging, and dropping uncontrollably.	1	4 – Low	SP231 LOLER

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REF	HAZARD	OPERATION OR TASK WHERE THIS HAZARD MAY BE EXPERIENCED	MAJOR CONCERNS	THOSE AT RISK	H	CONTROL MEASURES	R	RR	REFERENCES
8	Back deck operations	Vessel operations	Various	FUGRO GEOS	4	Never work alone on back deck. Adhere to procedures. Conduct risk assessment. Ensure sea state suitable. Know emergency procedures. Wear PPE. Ensure clear communication. Ensure responsibilities are known. Check all equipment prior to use. Competent persons. Personnel not involved in operations to be clear of back deck. Attach safety harness when working outside of guardrails. Always watch out for one another. Avoid complacency	1	4 – Low	SP227 SP229 SP230 SP231 SP237
9	Small boat operations	Small boat operations	Man overboard Stranded personnel	Fugro GEOS	5	Small boat operations are rarely required. Only carried out in good conditions. Vessel audit. Prior to leaving, check radio communications, fuels and secondary propulsion system (e.g. paddles). PPE required. Ensure plan is communicated to all	1	5 – Low	SP233
10	Vehicle use	Travelling on company business	Injury / health risks to persons Damage to vehicle Unfamiliarity	Fugro GEOS	4	Proper planning. Good pre-site brief. Use of reputable car / flight (etc) providers. Provision of all precautionary measures necessary. Personnel awareness. Use of Go / No Go form. Project Safety Plan. Be aware of other road users and be alert at all times. Check vehicle prior to use. Do not use any vehicle you consider to be in an unsafe condition. Report all malfunctions and incidents. Do not overload vehicle and secure load. Follow rules of the road. Share driving duties during extended periods. Use defensive driving skills.	1	4 – Low	Local regulations SP234 49 CFR part 40
11	Equipment	When checking, testing, setting up equipment on site	Injury to persons Damage to equipment	Fugro GEOS Crew	3	Test and set up in accordance with appropriate TI / manufacturers instructions etc. Competent persons only. Ensure all equipment is secure and checked prior to use. Use the correct tools for the job. Correct manual handling technique. Use PPE. Unauthorised personnel to remain clear of the area	1	3 – Low	Workshop and warehouse procedures.
12	Nature	Particularly when working in tropical conditions	Injury / health risks to persons	Fugro GEOS	4	Be alert. Move cautiously and noisily. Do not lean / disturb (possible habitats of) dangerous animals. Make no attempt to move such animals if they are obstructing you. Avoid wearing bright colours. Use insect repellent. Wear suitable clothing. Use sunscreen if applicable. Heed medical advice and take preventative medicines	1	4 – Low	SP234 MASTA

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REF	HAZARD	OPERATION OR TASK WHERE THIS HAZARD MAY BE EXPERIENCED	MAJOR CONCERNS	THOSE AT RISK	H	CONTROL MEASURES	R	RR	REFERENCES
13	Exposure to heat and cold	Outdoor working	Hypothermia Sun stroke / burn	Fugro GEOS Others	3	Limit exposure to conditions as far as is reasonably practicable. Slip slap slop (if appropriate). Wear the appropriate PPE and clothing. Take sufficient fluids. Take regular breaks. Monitor your colleagues. Where cold has penetrated, warm slowly. Where significant exposure has occurred, seek medical advice.	2	6 - Low	SP234
WORKSHOP HAZARDS									
14	Slips / trips / falls	Wherever there are items on the walking surfaces	Injury to persons	Fugro GEOS Visitors	3	Do not lay cables over floor area. Any cable laid across floor area should be taped down or covered with the appropriate trunking. Ensure good housekeeping and mop up spills. Adhere to working at height procedures, as appropriate.	2	6 - Low	SP324 Workplace, HSW Regs 1992 29 CFR 1910 subpart D
15	Hazardous materials	Use of substances in workshop / warehouse / yard / site environment	Injury / health risks to persons Damage to the environment	Fugro GEOS Visitors	3	CoSHH Register at each site. Authorised persons only. Hierarchy of control measures. Correct purchasing, use, storage, transport and disposal. Follow manufacturers' / carriers instructions.	2	6 - Low	CoSHH Regs 1999 29 CFR 1910 subparts H & Z US Appendix
16	Charging FLT batteries	Battery bay	Injury to persons Damage to equipment	FLT drivers	2	Authorised, competent users only. Equipment checks daily. PPE. Charge batteries only in designated area. No smoking / naked lights in area. Area well ventilated. Eye wash station and fire fighting equipment in the vicinity.	1	2 - Low	PUWER 98 and related regs 29 CFR 1910 subpart N



REF	HAZARD	OPERATION OR TASK WHERE THIS HAZARD MAY BE EXPERIENCED	MAJOR CONCERNS	THOSE AT RISK	H	CONTROL MEASURES	R	RR	REFERENCES
17	Equipment	Use of tools and other equipment	Injury to persons Damage to equipment	Workshop, warehouse & site personnel	3	Authorised, competent users only. Equipment checks daily. PPE. Eye wash station and fire fighting equipment in the vicinity. No welding allowed. Follow manufacturers' / GEOS instructions. Whenever possible, do not use extension cables and if used, ensure these do not constitute a trip / electrical hazard. Clean and store tools appropriately after use. Equipment subject to PAT / planned preventive maintenance. Use only waterproof plugs and socket in exposed areas. Report faults promptly. Know where is the location of any emergency switches. Personnel shall not interfere with the normal mechanical or electrical function of the machine. If required, guards must be used correctly. Leave machines in a safe condition	2	6 – Low	PUWER 98 SP324 Power tools risk assessment 29 CFR 1910 subparts O & P
18	Manual handling	Any lifting, pushing, pulling, restraining, moving, carrying of a load by hand or force	Injury to persons - musculoskeletal Damage to goods	Fugro GEOS	3	Personnel are trained. Use of correct manual handling technique. Use mechanical aids wherever possible. Do not move the load if the residual risk of that task is too great, or split the load if possible. Good housekeeping and work layout	2	6 – Low	Manual Handling Regs 1992 SP229
OFFICE HAZARDS									
19	Display Screen Equipment	Prolonged use of display screen equipment	Injury / health risks to persons – WRULD, eye strain, fatigue, stress etc	Fugro GEOS DSE Users	3	Training, self-assessment and correct adjustment of DSE. Use of DSE aids, where necessary. Regular exercise. Managing tasks / workstation layout. Repeat self assessment (or seek advice from Rep) whenever changes have been made	1	3 – Low	HSE (DSE) Regs 1992 SP325
20	Slips / trips / falls	Wherever there are items on the walking surfaces	Injury to persons	Fugro GEOS Visitors	3	Do not lay cables over floor area. Any cable laid across floor area should be taped down or covered with the appropriate trunking. Ensure good housekeeping and mop up spills. Adhere to working at height procedures, as appropriate.	2	6 – Low	SP324 Workplace, HSW Regs 1992 29 CFR 1910 subpart D
21	Manual handling	Any lifting, pushing, pulling, restraining, moving, carrying of a load by hand or force	Injury to persons - musculoskeletal Damage to goods	Fugro GEOS	3	Personnel are trained. Use of correct manual handling technique. Use mechanical aids wherever possible. Do not move the load if the residual risk of that task is too great, or split the load if possible. Good housekeeping and work layout	2	6 – Low	Manual Handling Regs 1992 SP229

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REF	HAZARD	OPERATION OR TASK WHERE THIS HAZARD MAY BE EXPERIENCED	MAJOR CONCERNS	THOSE AT RISK	H	CONTROL MEASURES	R	R/R	REFERENCES
22	Stress	Any work situation	Stress, fatigue, poor health	Fugro GEOS	3	Preventive measures include proper planning of tasks and individual's workload. Staff are encouraged to talk with their Line Managers about their situations	1	3 - Low	MHSW Regs 1999 SP331 QAM L2 Section 11
HUMAN BEHAVIOURAL HAZARDS									
23	Infectious Diseases	Any work situation, most notably working abroad. Infectious diseases are transferred by various vectors and routes Blood borne pathogens	Various results.	FUGRO GEOS Visitors Others First Aiders	3	Persons travelling abroad are passed medically fit and given suitable advice (MASTA / FCO / GP) regarding disease prevention and control. Relevant preventative medicines are taken. Infectious diseases are also passed around in normal situations (e.g. colds and flu). Persons should avoid contaminating others. First aiders are trained and provided with protection. Any body fluids should be handled and treated as though they are infectious	2	6 - Low	CoSHH Regs 1999 SP234, SP236 29 CFR 1910.1030 US Appendix
24	Hallucinogens	Recreational drug use	Various results	None	5	Use of drugs and alcohol are not permitted	1	5 - Low	SP222
25	Housekeeping	All work situations	Various results	Fugro GEOS Visitors Crew Others	4	Keep a clean and tidy environment. Substances are stored appropriately. Appropriate waste receptacles are employed. The cleaning of any spillage shall be effected as soon as it is detected. Properly dispose of scrap, litter, unused equipment, materials etc. Access ways, staircases, emergency exits, fire fighting and life saving equipment shall remain unobstructed at all times. Training. Audits	1	4 - Low	Various regulations SP322 QAML2 3.4
GENERAL HAZARDS									
24	General	Any	Unidentified risks	All		Review this risk assessment and amend as necessary, based on the prevailing circumstances. Use this risk assessment as a guide, but do not dismiss it, neither follow it verbatim. Assess each situation prior to commencement of operations. Do not take risks. Take appropriate measures to minimise risk to all involved. Raise incident report where unsafe situation, near miss, injury or incident occurs. Remember that it is the individual's responsibility to ensure the health and safety of himself and others who may be affected by his acts or omissions. Seek advice or assistance from HSE Rep or QA and HSE Manager			HSEMSM

SP221: HSE DOCUMENTATION FOR CONTRACTS

1.1 HSE Plan Guidelines

The QAM requires that an Outline Project Quality Plan (OPQP) be raised for every contract. For site operations, this document comprises three sub-sections:

- Outline Project Quality Plan and Contract Review.
- Contract Briefing Instructions.
- Contract HSE Risk Assessment & Safety Plan.

The Project Manager is responsible for the correct information appearing in all sections of the OPQP and a responsibility to ensure that all project members are fully conversant with all aspects of the OPQP. An OPQP is a working document for every day use. The Project Manager shall review, amend and re-issue the plan as necessary to meet changing circumstances, as per the QAM.

With regard to the following sections of the OPQP, this is for internal use by project staff to ensure that the necessary resources, equipment and materials and support services are available for the effective running of the project. In addition, that all Health & Safety risks have been considered, assessed and the appropriate control measures have been put into place. It is designed to meet the minimum requirements of this procedure and comprises two main parts:

- Generic HSE Procedures: Safety Procedures that cover aspects of the work required are checked and these shall be read and understood by members of the Project Team.
- Health and Safety Plan: Including:
 - Consideration of and drawing up of a Project Specific HSE Plan, if required (this procedure)
 - Consideration of and drawing up of a Project Management Responsibility Matrix, if required (see SM103)
 - Consideration of and drawing up of a Training Matrix, if required (See SP224)
 - Consideration of and drawing up of a Project Specific Hazard Identification and Risk Assessment, if required (See SP228)
 - Consideration of and drawing up of a Project Specific Emergency Response Plan, if required (See SP226)
 - Consideration of any other HSE Issues
 - Communication to all members of the Project Team

1.2 The Contract HSE Plan

This procedure details how a Project Specific HSE Plan shall be produced and who shall be responsible for the process. It shall apply to all projects that require an HSE Plan whether requested by the Client or because of the unusual nature of the project. It shall be the responsibility of the Project Manager to ensure this procedure is carried out, which includes the preparation of the HSE Plan, in conjunction with the HSE Manager, its distribution and revision.

1.2.1 Format - Field Operations

A Project Specific HSE Plan for field operations shall comprise the following documents in order:

- SP221 HSE Documentation for Contracts
- SP222 Drug & Alcohol Policy
- SP223 No Smoking Policy
- SP224 Personnel Qualification & Training Requirements
- SP225 Incident Reporting & Investigation
- SP226 Emergency Response Plan
- SP227 Project Mobilisation & Operations
- SP228 Hazard Identification, Risk Assessment & Control
- SP229 General Marine HSE Procedures
- SP230 Life Saving/Personal Protective Equipment

Plus other specific procedures appropriate to the study, such as:

- SP231 Mooring Equipment Deployment & Retrieval
- SP241 Lifting and Mechanical Handling
- SP406 Vessel Safety Audit Checklist

Plus other documents, as may be specifically drawn up, such as:

- Objectives (including Project Overview)
- Project Management Responsibility
- Training Requirements Matrix
- Project Specific Hazard Identification & Risk Assessment
- Emergency Response Plan
- Lift Plan

The Project / Divisional Manager / Director and the HSE Manager (or her designated representative) shall sign all HSE Plans.

1.2.2 Format – Other Operations

The format of the HSE Plan for other types of operations shall vary in accordance with the project requirements, but shall include, where appropriate, the following:

- Description of project activities.
- Description of HSE objectives.
- Description of project internal organisation.
- Client interfaces.
- Definition of HSE procedures.
- Description of HSE verification plans.

- Changes and alterations to the HSE plan.

The HSE Plan shall be cross-referenced to any Project Quality Plan in use. Reference to the appropriate section of a Project Quality Plan shall be sufficient to meet the above requirements.

1.2.3 Description of Project Activities

The project activity shall be documented to include brief descriptions of the major milestones through the project.

1.2.4 Description of HSE Objectives

The contractual requirements shall form the basis of the project's HSE objectives. If the contractual requirements are not sufficiently detailed or specified, then the HSE objectives shall be in accordance with this HSE Manual.

1.2.5 Description of Project Internal Organisation

The plan shall define who is in overall charge of the project and define specific allocation of HSE responsibilities and authority. This may include a detailed project organisation chart.

1.2.6 Client Interfaces

A description of the Client/Company interfaces shall be given. This shall include emergency response arrangements in accordance with Procedure SP226, Emergency Response Plan.

1.2.7 Definition of HSE Procedures

The applicable HSE procedures shall be defined in an HSE Plan Summary. This shall include reference to project-specific procedures. In certain cases this summary may be the entire HSE Plan. In others it may form part of a larger document.

1.2.8 Description of HSE Verification Plans

Details and plans for project audits and reviews shall be documented. Audits shall follow the principles established in the Company's Internal Audit Procedure.

1.2.9 Changes & Alterations to the HSE Plan

A method shall be defined for changes and alterations in the HSE Plan should they be required. This shall follow the principles established in the QAM.

SP222: DRUG & ALCOHOL POLICY

1.1 Introduction

A goal of Fugro GEOS ('the Company') is to maintain a safe and productive work environment for its employees and for the protection and efficient operation of its services. To further this goal, the Company adopts this policy for a drug and alcohol free work environment. Compliance with this policy is a condition of employment as the Company will not assume any risk created by the presence of drugs, alcohol and controlled substances in the work place. Nothing in this policy is intended to create contractual or other legal obligations on the part of the Company or such rights on the part of any employee.

All statements made in this procedure regarding Drugs and Alcohol apply equally to all Fugro GEOS employees, vessel crew, Client's representatives, and any other personnel employed on a contract.

1.2 Illegal Drugs, Drugs Paraphernalia & Controlled Substances

To ensure a safe, productive work environment at all Company facilities and during operations, the possession, consumption, or use of illegal drugs, drug paraphernalia or controlled substances on any Company premises or work sites or Company vehicles, as well as private vehicles utilised by employees while performing Company duties, is forbidden. Additionally, the Company prohibits any employee from being on duty, whether on or off Company premises or work sites, with any detectable amount of illegal drugs or controlled substances present in his/her body. Any employee found in violation of this policy shall be subject to disciplinary action, including summary dismissal. Any non-employee (including visitors, contractors, employees of contractors, etc.) found in violation of this policy, or suspected of having illegal drugs or controlled substances present in his or her body, may be refused entry on to or removed from Company premises and denied future access. Furthermore, depending on the circumstances, other action, including notification of appropriate law enforcement agencies, may be taken against any violator of this policy.

1.3 Misuse Use of Alcohol

To ensure a safe, productive work environment at all Company facilities and during operations, the possession or consumption of unreasonable quantities of alcohol at any time during the working day, whether or not on any Company premises or work sites or Company vehicles, as well as private vehicles utilised by employees while performing Company duties, is forbidden. An unreasonable quantity may be judged to be the quantity above which driving a road vehicle is prohibited by law. Any employee found in violation of this policy shall be subject to disciplinary action, including summary dismissal. Any non-employee (including visitors, contractors, employees of contractors, etc.) found in violation of this may be refused entry on to or removed from Company premises and denied future access. Furthermore, depending on the circumstances, other action, including notification of appropriate law enforcement agencies, may be taken against any violator of this policy.

It should be further noted that incapacitation to perform normal duties of work as a result of alcohol intake, whether or not this has been consumed during the working day, shall not be treated with sympathy.

1.4 Legal Drugs

Any employee taking a legal drug or other medication, whether or not prescribed by a physician, which is known or advertised as possibly affecting or impairing judgement, co-ordination, or other senses, or which may adversely affect ability to perform work in a safe and productive manner, must notify his/her supervisor or other management official prior to starting work or entering Company facilities. The supervisor or management official will decide if the employee can remain at work or on Company premises or work site and what work restrictions, if any, are deemed necessary or appropriate. Any employee violating this policy is subject to disciplinary action, including discharge.

Under no circumstances shall any employee be permitted to operate machinery or any Company vehicle (including ForkLift Trucks) whilst under the influence of any substance (drugs, alcohol or otherwise), which may impair judgement, co-ordination or usual performance.

1.5 Purpose and Scope of Drug and Alcohol Testing

1.5.1 Examinations

The Company does not require applicants for employment to submit to a urinalysis and/or blood test for drugs and/or alcohol as a precondition for employment, although it reserves the right to request a test at any time during employment. Circumstances where this may occur include:

- Following any recordable bodily injury or a UK Health & Safety Executive (HSE) reportable incident;
- Whenever required or requested by a customer of the Company as a condition for entering the customer's premises or performing services for the customer;
- Whenever an employee is suspected of violating the Company's Drug and Alcohol Policy, (see Reasonable Cause Testing)
- On a random selection basis and any other time deemed appropriate by the management of the Company, without prior announcement.

Employees will be required to sign a written consent to such examinations at the time of and as a condition of their initial employment at the time this policy is implemented. Any employee who refuses to consent to a required examination will be discharged. The purpose of these examinations is to determine whether a person has any detectable amount of alcohol, drugs or controlled substances present in his or her body. Employees should be aware that laboratory testing procedures are extremely sensitive and can detect the presence of drugs or controlled substances several days or even weeks after the drug was used.

1.5.2 Reasonable Cause Testing

Any Company employee will be substance tested when there is reasonable cause to believe that the employee is using a prohibited substance. The decision to test will be based on observable specific, contemporaneous physical, behavioural, or performance indicators associated with such use. The decision to require an employee to be tested for reasonable cause will be made by either a Company manager and/or at the request of a Client's representative. The Company shall have the right to deny such employee access to the property or work site pending receipt of the test results.

1.5.3 Searches & Inspections

The Company may conduct searches or inspections of employees and their personal effects, lockers, lunch boxes, purses, baggage, vehicles, etc., located on Company' premises or work sites. The purpose of such searches and inspections under this policy is to determine whether any person is in possession of alcohol, illegal drugs or controlled substances. Entry on to Company premises or work site constitutes consent to such searches or inspections. Any employee who refuses to consent to a required search or inspection may be discharged. Any non-employee having business with the Company or otherwise seeking access to Company premises or work sites who refuses to submit to a search or is found in possession of alcohol, illegal drugs or controlled substances may be removed and denied future access to Company premises or work sites. Searches of such non-employees will be conducted only with the written consent of such persons. When appropriate, any items discovered through such searches or inspections may be taken into custody and may be turned over to the proper law enforcement authorities. Any searches and inspections will be performed with concern for each employee's personal privacy and confidentiality.

1.5.4 Client Requirements

All employees shall note that most of our Clients (and all of those in the offshore sector) have strict Substance Abuse Policies. When employed by a client with a Substance Abuse Policy, Fugro GEOS is contracted to work according to the Client's policy as stated. The Contracts Manager will provide details of Clients' specific Substance Abuse Policies on request.

When at the Client's premises or when travelling to/from an offshore unit or when working offshore, this may include the following:

- Drug or alcohol testing where there are reasonable grounds to believe that an individual's behaviour or job performance would be impaired by substance abuse.
- Unannounced drug and alcohol testing and searches of the person and his or her personal effects.

Employees may not refuse a drug or alcohol test or a search if reasonably requested by a Client. Any such refusal must be immediately reported to a Company Director with reasons for the refusal.

Should an employee be refused access to a Client's premises or offshore transport or be requested to leave a Client's premises or offshore unit after failing a drug or alcohol test, it will be considered that he or she has committed a serious breach of discipline.

It shall also be noted that most Client contracts incorporate a statement similar to the following:

- The use, possession, sale, transfer or purchase of controlled drugs (in the UK this refers to Section 2 of the Misuse of Drugs Act 1971) or alcohol on Client's property or any offshore unit working on the Client's behalf is prohibited.

If employees are required to take prescribed drugs on to Client's premises, specifically vessels and offshore units, these must be declared to the Client's medical officer or other Client representative as may be reasonably requested.

1.6 Employee Acknowledgement

Acceptance of all requirements of the HSEMS and QMS is implicit in acceptance of a Contract of Employment from the Company.

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SP223: NO SMOKING POLICY

1.1 Introduction

Fugro GEOS recognises smoking as a fire hazard and damaging to health, not only of smokers themselves, but to other employees in a smoky environment. To minimise the risks to employee health due to inhalation of tobacco smoke, the Company has adopted the following 'No Smoking Policy'.

The term 'cigarettes' is used throughout this document, but is deemed to include cigars, pipes and other smoking paraphernalia.

1.2 Policy Statement

1.2.1 No Smoking Policy

To enhance the safety of the work environment, a No Smoking Policy will be adopted at all Company facilities. Smoking will not be allowed within Company facilities at any time. Smoking is allowed outside Company buildings, as long as the following points are met:

- Smokers should dispose of cigarettes in the appropriate manner, ensuring lighted ends are fully stubbed out.
- Waste from smoking should be placed in bins, not discarded on the floor.
- Smoking is not allowed in view of client or other visitors.

Any non-employee (including visitors, contractors, employees of contractors, etc) should be advised of this policy by his/her Company host. The host is to ensure non-employees in his/her charge comply with this policy. Any employee or non-employee found in violation of this policy will be asked to desist, and may be asked to leave Company premises if unwilling to comply. Furthermore, employees continually contravening the No Smoking Policy may be subject to disciplinary action.

Note that where local regulations are more stringent than the instruction given above, those shall be adhered to. For example, The UK Smoke-free (Premises and Enforcement) Regulations 2006 , prohibits smoking in some enclosed spaces, including but not limited to:

- Restaurants, bars and public houses
- Halls and any other premises used for the assembly of members of the public for social or recreational purposes
- Offices, factories and other premises that are non-domestic and in which one or more persons work
- Offshore installations, except designated rooms
- Vehicles which one or more persons use for work, except private vehicles

These Regulations which extend to England and Wales/Scotland specify penalties and discounted amounts for the purposes of the smoking offences created by Chapter 1 of Part 1 of the Health Act 2006.

Regulation 2(1) provides that the maximum fine on conviction for an offence relating to the display of no-smoking signs is level 3 on the standard scale (currently £1000). Regulation 2(4) provides that where the fixed penalty procedure is used for an alleged offence relating to the display of no-smoking signs—

(a) the fixed penalty is £200; and

(b) the discounted amount is £150.

Regulation 2(2) provides that the maximum fine on conviction for an offence of smoking in a smoke-free place is level 1 on the standard scale (currently £200). Regulation 2(5) provides that where the fixed penalty procedure is used for an alleged offence of smoking in a smoke-free place—

(a) the fixed penalty is £50; and

(b) the discounted amount is £30.

Regulation 2(3) provides that the maximum fine on conviction for failing to prevent smoking in a smoke-free place is level 4 on the standard scale (currently £2500).

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SP224: PERSONNEL QUALIFICATION & TRAINING REQUIREMENTS

1.1 Introduction

Fugro GEOS' QMS and HSEMS recognise that the provision of training is essential. It is policy that all employees are given HSE training appropriate to their employment. The QAM requires:

- A system for the identification of training needs.
- Proper allocation of the responsibilities for training.
- Training to cover all levels of staff from senior management to new entrants.
- Analysis of special training needs.
- A continuous process of competency development.
- Training records

The responsibility for staff training rests with Divisional Managers. The HSE Manager shall assist and guide the Training Officer in HSE training matters. Training records are held by the Training Officer, and are subject to periodic review.

All new and contract personnel shall receive induction training in accordance with the Induction Procedure as detailed in the QAM. Competency of staff shall be measured by competent individuals and records maintained.

1.2 Safety Orientation/Induction

All new employees shall be given basic induction training at the earliest opportunity. In the office, this shall be during their first few days of employment. New employees shall be given instructions on getting medical examinations and requested to provide originals (for copying) of any current HSE certification.

QA and HSE Induction Training shall provide employees with a basic practical understanding of QA and HSE Management Systems at Fugro GEOS and of the accident and emergency procedures in force at their work location. This shall include a site tour and a familiarisation with evacuation alarms and procedures and first aid facilities and procedures.

The basic induction process will be different for each work location and personnel transferring to a new work location shall also receive an HSE induction. The completion of induction training shall be recorded.

Procedure SP227 details the general requirements for any Fugro GEOS or sub-contract employee joining a vessel or rig prior to offshore operations. Once aboard the vessel, rig or offshore installation, all employees shall ensure that they receive a Safety Orientation/Induction Tour from a designated member of the crew.

1.3 Short Service Employees

From time to time, Fugro GEOS employs a number of individual, specialist sub-contractors on an ad-hoc short-service basis. It is the Divisional Director’s responsibility to ensure that the individual concerned has the necessary scientific qualifications and experience for the proposed work before the individual is employed. Responsibility for ensuring that the individual has the required project specific training and is aware of any specific medical requirements or travel precautions identified in the Project Emergency Response Plan lies with the Operations Manager and/or Project Manager.

No sub-contractor shall be allowed to start work on a project until the Operations Manager and Project Manager are satisfied that appropriate project specific training has been provided or that suitable arrangements are in place for on-the-job training. The sub-contractor will work with a qualified mentor (an employee fully trained and qualified with respect to their current job and HSE issues), who will ensure that the person is only performing tasks for which they have received the proper training. The mentor and a manager will evaluate the performance and progress of the sub-contractor until they are confident that the individual(s) is fully qualified for the job.

Short Service Employees are also subject to Induction Training.

1.4 HSE Training and Competency

Fugro GEOS ensures that all employees are competent to carry out the tasks required of them. In order to carry out these tasks, certain HSE techniques may need to be employed, such as Hazard Identification and Risk Assessment or Manual Handling. Fugro GEOS has devised a training program that details which HSE training courses are required by which staff groups, who provides the training and how often it should be carried out. Fugro GEOS has also documented the course agenda and measures of performance necessary to determine the competency of the individual for each of the HSE subject areas. The HSE training requirements are detailed here below:

HSE Training Course	Trainees	Standard / Level	Trainer	Refresher period
Working at Heights	Workshop & Warehouse /Site /ICT	Basic	Internal	<36 mths
Working at Heights	Nominated	CITB	External	<60 mths
Lifting Gear Operations	Site	LEEA	External	<60 mths
Electrical Safety	Workshop/ Site	Basic	External	<60 mths
Electrical Safety	Specific Staff	HNC etc	School	Once off
PPE	All Wearers	Basic	Internal	Annually
Use of hand tools	Workshop /Site /ICT	Basic	Internal	<36 mths
Use of powered tools	Nominated	Basic	Internal	<36 mths
Use of bench tools	Nominated	Basic	Internal	<36 mths
Abrasive Wheels	Nominated	CITB	External	<60 mths
Soldering	Workshop	Basic	Internal	<36 mths
Soldering	Specific Staff	HNC etc	School	Once off
Fork Lift Truck	Nominated	RTITB	External	<60 mths
Paper Drill	Nominated	Basic	Internal	Annually
Manual Pallet Truck	Workshop & Warehouse	Basic	Internal	<36 mths

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HSE Training Course	Trainees	Standard / Level	Trainer	Refresher period
QA and HSE Induction	All	Induction	Internal	Once off
Safety Essentials	All	Standard	Internal	<36 mths
Manual Handling	All	Standard	Internal	Annually
Hazard Id & Risk Assess	All	Standard	Internal	Annually
Warehouse Safety	Workshop & Warehouse / Site	Basic	Internal	<36 mths
Travel Management	Travellers	Standard	Internal	Annually
Lockout / Tagout & PTW	Workshop / Site	Standard	Internal	Annually
Waste Management	All	Basic	Internal	Annually
Hazardous Substances	All	Basic	Internal	Annually
Nitrogen Purging	Nominated	Basic	Internal	<36 mths

Staff required to work offshore will have additional standard training needs and these have been determined. The following chart details these requirements and also those that Fugro GEOS requires of any other vessel crewmember:

GENERAL REQUIREMENTS	Fugro GEOS		Vessel's Crew						When Due
	Party Chief/ HSE Advisor	Scientist/ Engineer	Master	Chief Officer/ First	Chief Engineer	Boatswain/ Coxswain	Winch Operator	Doctor/ Paramedic	
Name	√	√	√	√	√	√	√	√	-
Relevant Experience (years)	√	√	√	√	√	√	√	√	-
Spoken English	√	√	√	√	√	√	√	√	-
TRAINING REQUIREMENTS									
Cogent Employing Company Induction	√	√							Pre-Mob
Breathing Apparatus			√	√	√	√	√	√	Pre Mob
Drug & Alcohol Test	√	√	√	√	√	√	√	√	Pre Mob
Fire Fighting			√	√	√	√	√	√	Pre Mob
First Aid & CPR Training ¹	√	√	√	√	√			√	Pre Mob
Health & Safety Training	√	√	√	√	√			√	Pre Mob
Helicopter Underwater Escape Training	√	√							Pre Mob
Maritime Certification			√	√	√	√	√	√	Pre Mob
Offshore Medical (UKOOA ² std or equivalent)	√	√	√	√	√			√	Pre Mob
Offshore Survival (OPITO ³ std or equivalent)	√	√	√	√	√	√	√	√	Pre Mob
Project Specific Health Needs (inoculations, etc)	√	√	√	√	√	√	√	√	Pre Mob
Emergency Response Plan	√	√	√	√	√	√	√	√	At Mob
Project Specific HSE Plan	√	√	√						At Mob
Safety Orientation/Induction	√	√							At Mob

√ - Indicates a requirement. May be replaced with appropriate information / date of last course etc.

¹ A minimum of one Fugro GEOS employee

² United Kingdom Offshore Operators Association

³ Offshore Petroleum Industry Training Organisation

1.5 Proposed Specialist Training

It is the responsibility of the Divisional Director and Operations Manager to ensure that staff assigned to a project have the necessary experience, training and certification required to enable them to safely undertake the work to the required standard.

If there are any further project specific training requirements, they will be outlined in the Project Specific HSE Plan. Personnel shall also take note of, and make arrangements for, any specific medical requirements or travel precautions, which may be detailed in the Outline Project Quality Plan, Project Specific HSE Plan or other information as may be provided.

All documents shall be published and circulated to affected staff in good time in order to allow for proper preparations for arrangements to be made.

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SP225: INCIDENT REPORTING & INVESTIGATION

1.1 Introduction

This procedure defines how Health, Safety and Environmental incidents shall be reported and who shall be responsible for carrying out the reporting and investigation process. It applies to all incidents (adverse events) that occur during working hours and under the direct control of the Company.

Every year, in the UK, over 40 million working days are lost through work-related injuries and ill health. Reporting and subsequent investigation assists us to:

- Prevent further accidents
- Identify trends, prioritise and to concentrate effort
- Raise awareness and improve morale
- Comply with our legal obligations
- Prevent business losses
- Develop management skills, which can be utilised in other areas of the business

1.2 Responsibilities

For marine / field operations, the Party Chief is responsible for ensuring the immediate response and reporting procedure is carried out. In the office this shall be the HSE Representative. Fugro GEOS has a statutory responsibility to record all accidents and to report certain categories of dangerous occurrences, injuries, illness and environmental damage to the appropriate regulatory authority.

All incidents must be reported to the Fugro GEOS contact nominated in the Emergency Response Plan as soon as possible and certainly within 24 hours. In the event of a Medical Treatment Case, Major Injury, Fatality or Dangerous Occurrence, it must be reported immediately.

1.3 Incident Reporting Criteria

Fugro GEOS uses the following definitions for incidents that must be reported under the HSEMS.

<u>Incident</u>	An event causing damage to environment, plant and equipment, product loss or interruption of work	Example: road traffic accident, vessel breakdown, equipment loss, accidental fuel dumping.
<u>Unsafe Working Practice</u>	An event that could lead to a near miss or something more serious	Example: Inappropriate behaviour, not wearing appropriate PPE
<u>Unsafe Working Condition</u>	A piece of equipment or plant is found to be faulty or defective such that it would be a safety risk if used	Example: Lifting gear out of certification, missing barrier
<u>Near Miss</u>	An event which could have caused injury, illness or environmental damage, or damage to plant and equipment, product loss or interruption of work, but did not.	Example: slipping over without injury, standing under a hoisted load.
<u>Minor Injury</u>	Any work injury that requires less treatment and/or attention than a medical treatment case.	Example: slight cuts, bruising.

Cont...



<u>Restricted Work Case</u>	Any work injury which results in the person being unable to perform all his normal duties on any day after the accident.	Example: severely twisted ankle, slight concussion.
<u>Lost Workday Case</u>	Any work injury that renders the injured person temporarily unable to perform his regular job or restricted work on any day after the accident.	Example: food poisoning, strains.
<u>Over 3-Day Injury</u>	Any work injury which is not major but results in the injured person being away from work or unable to do their normal duties for more than three days (including weekends, rest days and holidays) not counting the day of the injury itself.	Example: severe back strain requiring more than three days off work.
<u>Medical Treatment Case</u>	Any work injury that involves neither lost workdays nor restricted workdays but which requires treatment by, or under the specific orders of, a doctor or paramedic.	Example: sprains, stitching.
<u>Major Injury</u>	Any injury requiring urgent medical attention, MEDEVAC, surgery or hospitalisation.	Example: fracture to skull, spine, pelvis; amputation, damage to eyes; loss of consciousness.
<u>Fatality</u>	Self-explanatory.	Self-explanatory.

In addition, where Fugro GEOS is working under the jurisdiction of the UK HSE the following incidents are reportable to the Incident Contact Centre. Other countries may have similar legislation.

<u>Over 3-Day Injury</u>	> As defined above.
<u>Dangerous Occurrence</u>	<ul style="list-style-type: none"> > Collapse, overturning or failure of a load bearing part of a lifts and lifting equipment > Explosion, bursting or collapse of a closed vessel or associated pipework > Plant or equipment coming into contact with overhead power lines > Fire or explosion due to electrical short circuit. > Explosion or fire resulting in suspension of normal work for over 24 hours. > Accidental release of any substance, which may damage health > Failure of industrial radiography or irradiation equipment to de-energise or return to safe > Malfunction of breathing apparatus while in use or testing immediately prior to use > Failure or endangering of diving equipment, trapping of diver, explosion, uncontrolled ascent > Collapse or partial collapse of scaffold >5m high, or erected near water > Unintended collision of a train with any vehicle > Dangerous occurrence at a well (other than a water well) or a pipeline > Failure of any load bearing fairground equipment/ derailment or unintended collision of cars > Overturning of a road tanker carrying a dangerous substance or release of substance > Unintended collapse of any building or structure, alteration or demolition where >5 tonnes falls > Sudden, uncontrolled release of flammable substances at various concentrations > Note that additional categories apply to mines, quarries, transport and offshore workplaces
<u>Major Injury (affecting employee or member of the public)</u>	<ul style="list-style-type: none"> > Fracture other than to fingers, thumbs or toes > Amputation or dislocation of the shoulder, hip, knee or spine > Loss of sight (temp or perm), chemical or other burn or penetrating injury to the eye > Electric shock or burn leading to unconsciousness/ resus/ hospitalisation >24hrs > Any other injury leading to hypothermia or heat induced illness or unconsciousness or requiring resuscitation / hospitalisation >24hrs > Unconsciousness caused by asphyxia / exposure to harmful substance leading to acute illness > Acute illness requiring medical treatment from possible exposure to biological agent or toxins etc
<u>Occupational Disease</u>	> Reportable diseases include: Certain poisons; some skin diseases; some lung diseases; infections such as leptospirosis or tetanus; other conditions e.g. hand-arm vibration syndrome
<u>Gas Incidents</u>	> Affecting only distributor, fillers, importers, suppliers, installers of flammable gas
<u>Fatality (emp or mop)</u>	> Self-explanatory.



1.3.1 Accident Book

All work injuries that occur in a Fugro GEOS office shall be recorded in the official Accident Book which is kept at every office, with the HSE Representative being advised as soon as possible. At the month's end, the HSE Representative in each office shall send a copy of the relevant page(s) of the Accident Book to the HSE Manager in Wallingford. As information recorded is personal and subject to data protection regulations, such information must be kept securely.

1.3.2 Incident Report Form

All other incidents (adverse events) that occur in the office environment and all incidents whether or not an injury was sustained that occur in the field or offshore shall be reported on an Incident Report Form. All incidents shall be reported, no matter how trivial or insignificant they may seem to be. Such reports may not be circulated outside of the Company without the express permission of a Director or the QA and HSE Manager.

The HSE Representative ensures that appropriate follow up action is taken and documented, and copies all reports and related material to the HSE Manager. Where considered necessary, results are communicated to all employees. Investigations may be conducted into the causes of an incident. The purpose of such an investigation is to identify and rectify shortcomings in the Company's system. Investigations are not undertaken to apportion blame.

1.3.3 HSE Incident Register

Whilst the HSE Representatives hold Incident Reports from all adverse events 'belonging' to that Office, the HSE Manager shall hold a central file, maintain monthly statistical information on the Company's HSE performance, keep a log and copies of all Incident Reports and related documentation.

1.3.4 Sub-Contractor Incidents

Sub-contractors to Fugro GEOS are treated in exactly the same way as Fugro GEOS employees with respect to the reporting of incidents. Where Fugro GEOS is acting as a sub-contractor to another party, personnel shall, unless agreed otherwise, follow the reporting procedures laid down by the Client. However, the Company's most senior representative shall also complete Incident Forms where appropriate and submit them in accordance with the requirements of this procedure.

1.4 Modified / Alternate Work Policy

Fugro GEOS recognises that its employee's are one of its most valuable resources. In keeping with this belief, Fugro GEOS is developing a Modified or Alternate Work Policy (Light Duty) to assist either an injured or ill employee's return to the workplace as soon as possible. This policy is not intended to limit or discourage modified/alternate work but more to encourage it, because when used properly, it is beneficial to both the Company as well as the employee. It is the prime objective of management to do everything possible to get the individual back to his/her regular work duties as soon as possible. However, it must



be monitored to ensure that injured or ill employees are not put into positions whereby their situation can worsen or that an employee is left on modified or alternate work duty for an extended period of time.

The Divisional Director and HR Manager are responsible for implementing the policy in discussion with the employee concerned.

- In all cases, a doctor's certificate shall be obtained and forwarded to the HR Manager and the employee is required to have a "return to work" interview with their line manager upon their return.
- If the doctor has stated that the employee cannot immediately return to his/her original position but is allowed to do modified or alternate work, the Divisional Director and HR Manager will offer the employee alternative work based on the doctor's assessment of the employee's work capability and the availability of such positions.
- For all work-related injuries and illnesses, Fugro GEOS reserves the right to send the injured person to a designated doctor for an initial or secondary assessment.
- Under no circumstances will an injured or ill employee be allowed to return to work unless he/she provides a doctor's certificate stating that he/she is fit for work.

1.5 Sequence of Events Following an Incident

1.5.1 Emergency Response

- Make the area safe
- Give first aid, if required

1.5.2 Initial Report

- Report to the designated person
- Complete the Incident Report Form

1.5.3 Initial Assessment

- If applicable, report the event to a regulatory authority
- Decide on the level of investigation:
 - Low Level – Short investigation
 - Medium Level – More detailed investigation
 - High Level – Team based investigation, carried out under the supervision of Top Management

The potential consequences and the likelihood of the incident recurring shall determine the appropriate level of investigation. The urgency of the investigation will depend on the magnitude and immediacy of the risk involved. In general, incidents should be investigated and analysed as soon as possible. The objective is not just to establish how the adverse event happened, but also what allowed it to happen.

1.5.4 The Investigation

An effective investigation requires a methodical structured approach to information gathering, collation and analysis in order to avoid bias and leaping to conclusions. The findings of the investigation will form the basis of an action plan to prevent the incident from recurring or to improve general overall management of risk and individual hazard identification and risk assessments. When investigating incidents, consider the following causes:

- Immediate Cause(s) – The Agent of the incident. The most obvious reason why an incident occurred, e.g. The guard is missing, etc. There may be several immediate causes identified
- Underlying Cause(s) – Unsafe acts or conditions may lead to an incident. The less obvious 'system' or 'organisational' reason for an incident happening, e.g. pre-use checks were not carried out etc.
- Root Cause – An initiating event or failing from which all others grow. Root causes are generally management, planning or organisational failings, e.g. failure to identify training needs and assess competency etc.

Incidents may have many causes. A chain of failure and errors lead almost inevitably to an incident. This is known as the 'Domino Effect'. To prevent adverse events occurring, effective, suitable and sufficient hazard identification and risk assessment must be carried out and control measures put in place.

Investigation Procedure.

1. Gather the information

Find out what happened and what conditions and actions influenced the incident

2. Spend time on the investigation

The amount of time and effort spent on information gathering should be proportionate to the level of investigation. Consider:

- Where and when
- Who was involved
- How did it happen
- What activities were being performed
- Was there anything unusual taking place
- Were there adequate safe working practices and were they followed
- What injuries / ill effects were caused
- How did the injury occur (agent and method)
- Was the risk known and if so, why wasn't it controlled
- Did the organisation and arrangement of the work or workplace layout influence the incident
- Was maintenance and cleaning sufficient
- Were the people involved competent
- Did the nature or shape of the materials influence the incident
- Did difficulties using the equipment influence the incident
- Was safety equipment suitable and sufficient
- Did any other conditions influence the incident

3. Analyse the information

Examine all the facts collected. Analysis and information gathering go hand in hand, as by analysing more lines of inquiry may open up. Consider, in particular:

- Organisational Factors, e.g.
 - Work pressure
 - Resources
 - Supervision
 - Management commitment
- Job Factors, e.g.
 - How much attention is needed for the task
 - Are divided attention or distractions present
 - Inadequate procedures
 - Time available
- Human Factors, e.g.
 - Physical ability
 - Competence
 - Fatigue, stress, morale, drugs / alcohol
- Plant and Equipment, e.g.
 - Is the workplace layout user-friendly
 - How clear and simple to read and understand are the instructions / controls
 - Is the equipment designed to detect / prevent errors

4. Identify Suitable Risk Control Measures

Identification of failings will lead to the identification of possible solutions. Systematically evaluate and prioritise these for the action plan, based on their ability to prevent recurrence or whether they can be successfully implemented. Consider the priority based on the accepted Hierarchy of Control Measures (Elimination; substitution; engineering; segregation; reduction in time / personnel exposure; PPE; procedures). Identify trends and possibly evaluate cost to the business of failure.

1.5.5 The Action Plan and Its Implementation

An action plan for the implementation of additional risk control measures (over and above those identified in the original hazard identification and risk assessment) is the desired outcome of a thorough investigation. The action plan should have SMART (Specific, measurable, agreed, realistic, time-based) objectives. Top Management should review the action plan and employees should be kept informed.

SP226: EMERGENCY RESPONSE PLAN

1.1 Introduction

This procedure describes how Fugro GEOS shall respond to an offshore emergency and/or a medical evacuation, and who shall be responsible for the process.

A project specific Emergency Response Plan should be prepared and may be printed and bound separately if required.

1.2 Requirements of ERP Procedure

An incident offshore should never be underestimated in its severity. Situations may deteriorate extremely rapidly and the remote nature of some of Fugro GEOS' operations may exacerbate any situation. It is therefore essential that offshore personnel pass ashore as much relevant information as possible in the initial phases of an incident in order that the shore emergency team can make a sound assessment of the situation and act accordingly.

1.2.1 General

The Project Emergency Response Plan shall be circulated to all parties involved with each of Fugro GEOS' marine operations, where risks are identified. This includes the Client, Client's Representative(s), the vessel's Master, vessel owners, major sub-contractors and other relevant third parties. Each party shall ensure they fully understand their required actions and responsibilities covered by the ERP.

The Project Manager shall ensure copies are held on file for easy access by the emergency team, as well as with the appointed Party Chief.

1.3 Types of Emergency Situations

A degree of judgement is required when deciding the severity of an incident. It is therefore imperative that the Party Chief gives the emergency team as much information as possible regarding the incident. Individuals in charge of the situation must be trusted and allowed to make fitting judgements and decisions they deem necessary without fear of reprisal.

Figures 1 to 3 outline actions to be taken under different emergencies. These are detailed below:

- Figure 1: Personnel Illness or Injury
- Figure 2: Fatality
- Figure 3: Vessel/Maritime Incident/Disaster

1.3.1 Definitions

Emergency Management Team. The person or persons managing an offshore emergency from the office (in working hours) or from home (out of working hours). This may be one person (e.g. Operations Manager, Regional Director, Project Manager) or a team of personnel.

Vessel Owner's Emergency Team. The composition of the individual vessel owner's emergency team will vary. However, Fugro GEOS requires all vessel owner's to provide suitable emergency and contingency contact numbers.

Client's Emergency Team. Depending on the scale of operations and number of Client personnel onboard, the Client may or may not appoint an emergency team. If appointed, this team will have its own contacts and procedures for handling emergencies. Where practical, this team will assist the Fugro GEOS emergency team, or vice versa.

Incident Classifications. Three classifications of incident are used within this procedure:

- Personal Illness or Injury.
- Vessel/Transport Related.
- Environmental.

Each category can be further classified by the severity of the incident, ranging from minor to disaster, as below:

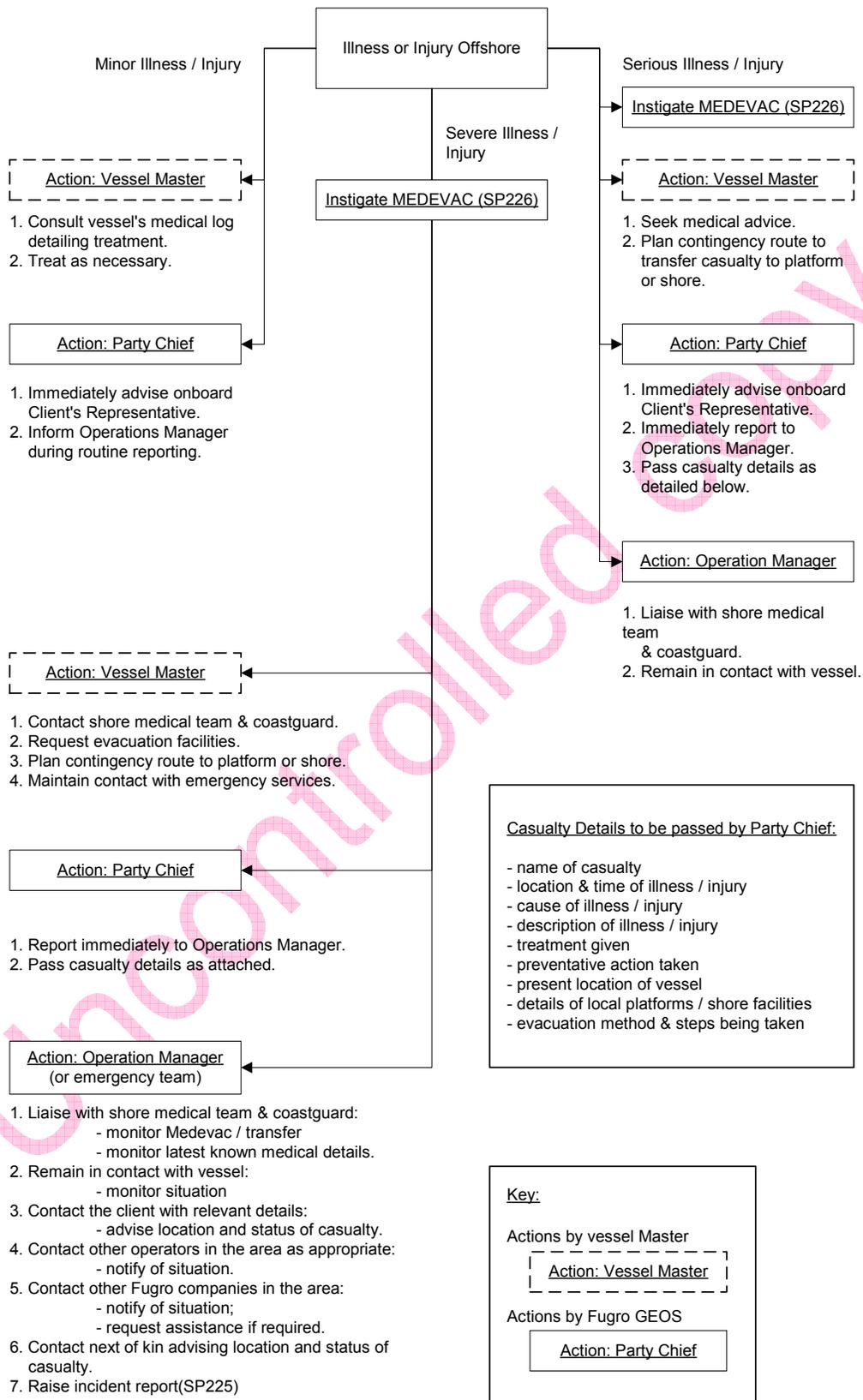
Minor Incident. A minor incident has minimal effect on operations and requires no external intervention. Medical cases are stable (e.g. seasickness, diarrhoea, minor first aid case, minor machinery damage).

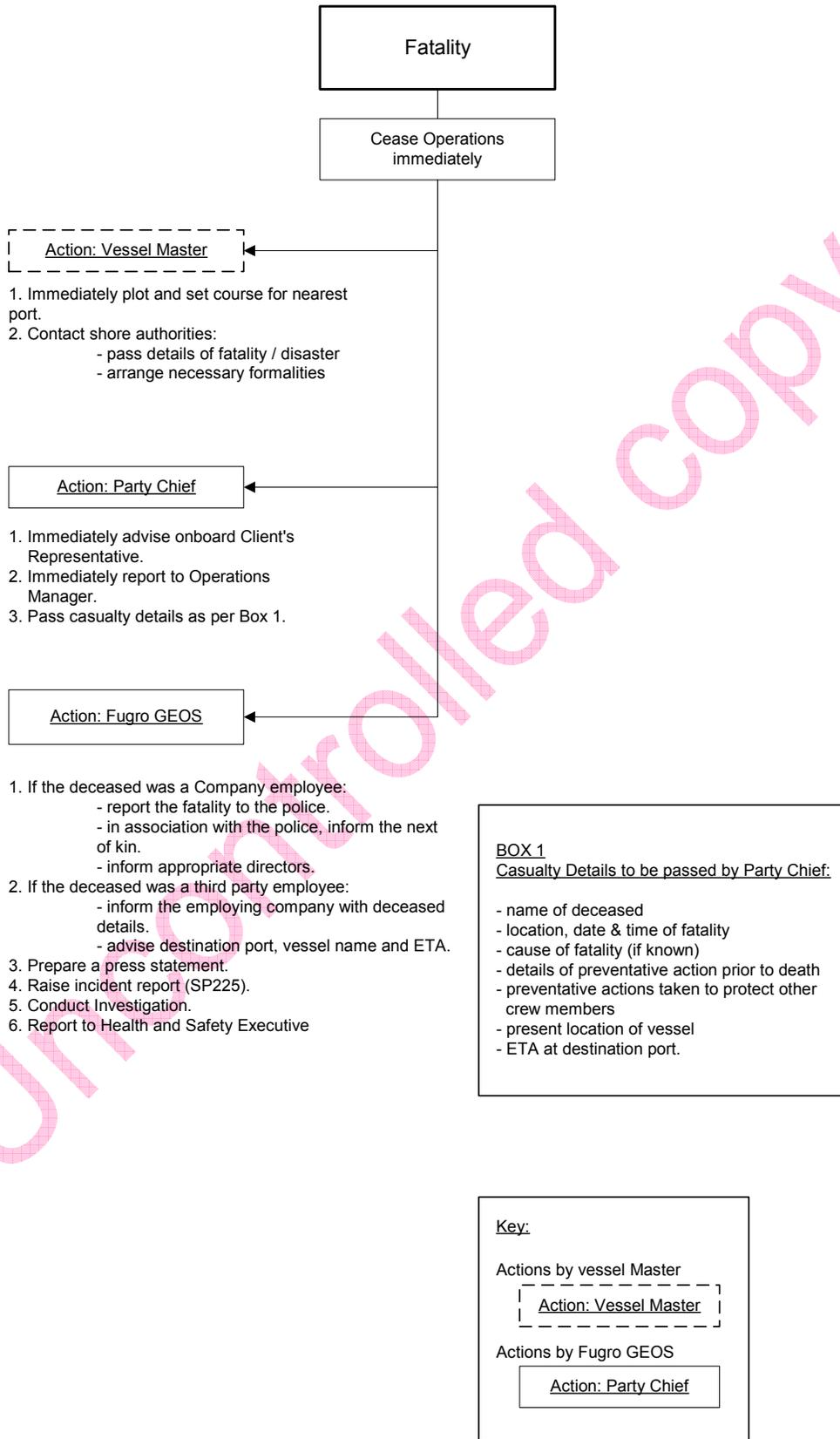
Serious Incident. A serious incident has a significant effect on operations and may require operations to be terminated in a controlled fashion. Medical cases may require medical advice in order to stabilise the situation (e.g. man overboard, serious medical case and propeller damage).

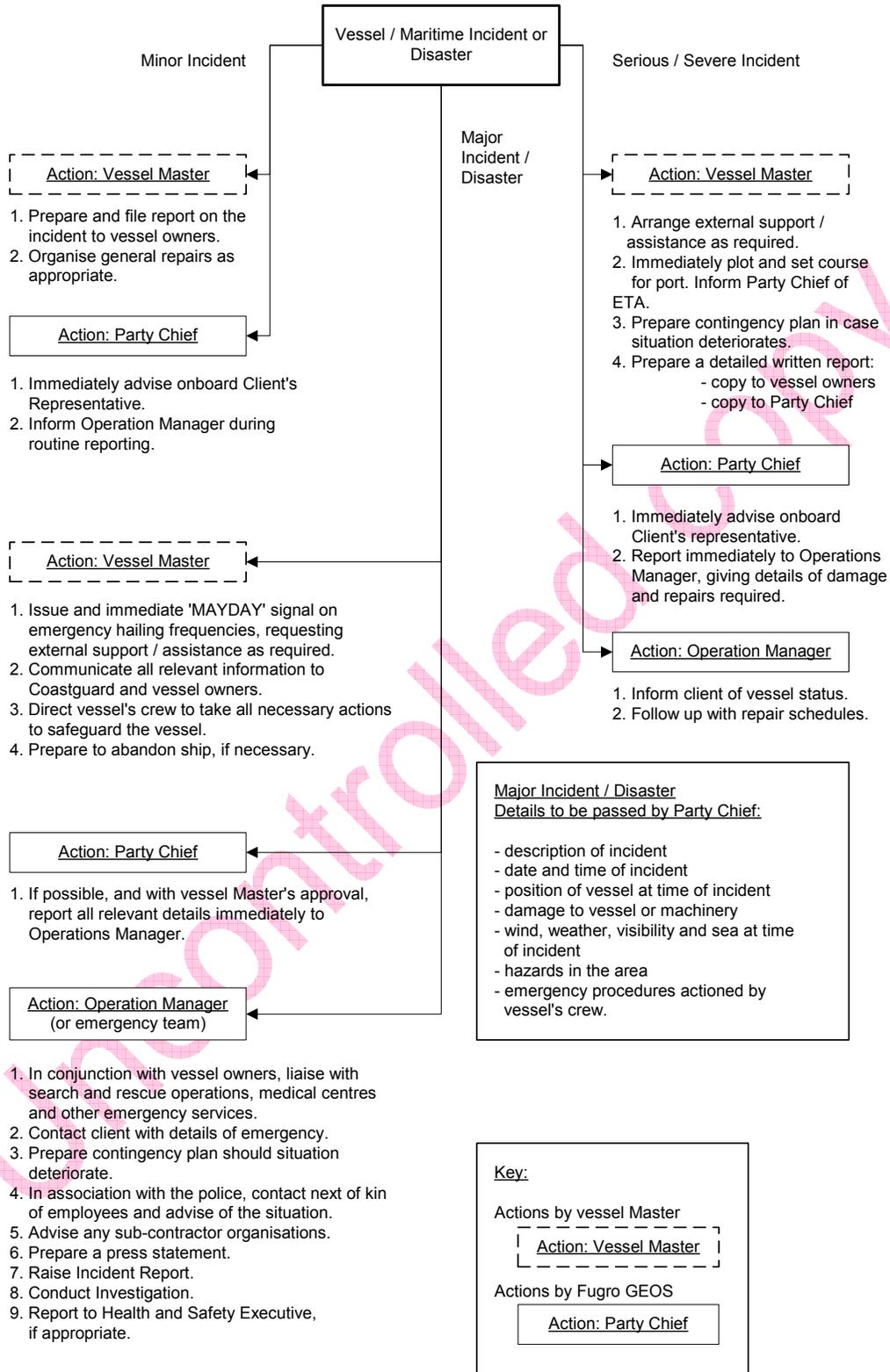
Severe Incident. A severe incident requires immediate external support and assistance. Medical cases cannot be treated locally and require immediate evacuation (i.e. Medevac) (e.g. large fire, broken limbs, total power failure).

Major Incident. A full emergency requiring a major rescue operation to be prepared and mobilised if required. There is a definite risk of loss of life or vessel (e.g. following explosion or major breakdown).

Disaster. A full emergency requiring a major rescue operation. There is an imminent or actual loss of life or vessel. Emergency services must be mobilised (e.g. threat of abandon ship).







1.4 Notification of an Emergency

During office hours, the Party Chief shall inform the Operations Manager of all reportable incidents. Outside office hours, the Party Chief will contact the Operations Manager on the alternative telephone number stated in the Project Emergency Response Plan or the flow chart accompanying the ERP. If this is not possible, the Party Chief should contact the next named Fugro GEOS Manager/Director. All incidents shall be reported in accordance with the Company's Incident Reporting Procedure (SP225).

The Party Chief shall also ensure that the Client's Representative aboard the vessel is advised of all incidents and the actions being taken.

The Operations Manager (or first contact) shall inform the relevant Company Directors, Managers, members of the emergency team and other applicable authorities. When required, emergency team members go to the office, if practical. Specific responsibilities during the emergency are defined below:

Master. The vessel's Master has the responsibilities and authority required by International Law.

Party Chief. The Party Chief is the main point of contact for Fugro GEOS' communications aboard the vessel during the emergency. With the approval of the vessel's Master, the Party Chief shall inform the Operations Manager and keep him informed of any change in the situation.

Operations Manager. The Operations Manager is responsible for maintaining contact with the vessel during working hours. He shall keep the Company Directors fully apprised of the emergency and shall supervise the emergency management team. Outside office hours, the Operations Manager should be contacted at home. If he is not contactable, the next named person should be contacted.

Operations Director. The Operations Director shall, at his discretion, keep the Managing Director informed of the emergency. The Operations Director, in consultation with the Managing Director, is responsible for liaising with the Client and vessel owners about approving and releasing information to the media or third parties. He is also responsible for keeping the next of kin of personnel and sub-contractors advised of developments. This responsibility does not extend to informing next of kin of loss of life.

HSE Manager. The HSE Manager shall provide background information and support as required by the emergency management team.

Assignment of Deputies. Where possible, a deputy shall be delegated for each position. This requirement shall depend on the severity of the emergency, the remoteness and logistical difficulty of the emergency and availability of personnel. If individuals holding primary responsibility are not available, their responsibility automatically falls to the deputy. In this case, the deputy will delegate his own deputy from the available pool of personnel.

1.4.1 Vessel Owner's Emergency Team

The vessel owner's emergency team will be responsible for co-ordination with any search and rescue or salvage operators called to recover the vessel to safety. They shall also co-ordinate with the vessel underwriters and local maritime authorities. The vessel owner's emergency team may require assistance from Fugro GEOS personnel. The vessel owner's emergency team shall be the point of contact for all matters relating to the vessel's crew.

1.4.2 Client's Emergency Team

Where there is a Client emergency team, they shall be responsible for handling emergencies relevant to their own personnel. They may require assistance from Fugro GEOS personnel.

1.5 Emergency Response - Medevac

Responses to non-Medevac emergencies are detailed in the above paragraphs. In the event of a medical evacuation being required, the following Emergency Response Procedure applies.

Master. The vessel's Master is responsible for ensuring the procedure is carried out, which may vary from vessel to vessel, depending on the vessel operator's own procedures.

Party Chief. The Party Chief will assist the Master as required. With the Master's agreement, he shall report to Fugro GEOS' Operations Manager or Duty Officer giving the following information:

- Name of casualty.
- Location, time of illness/injury.
- Cause of illness or injury.
- Description/symptoms of illness/injury.
- Details of any known related historical illness or injury.
- Medical information required.
- Any treatment given.
- Preventative action taken.
- Location and name of vessel.
- Details of any local platforms or shore facilities.
- Evacuation method and steps being taken.
- Details of authorities alerted.
- Own name.

He shall also ensure that the Client's Representative aboard the vessel is advised of the emergency and the actions being taken.

Operations Manager. The Operations Manager shall contact the Client with details of the emergency and, if appropriate, other operators with facilities in the area. He shall contact the Coastguard rescue centre to liaise over the evacuation. He shall liaise with the medical facility over personnel transfer and

will pass on casualty details. Finally, he shall contact the casualty's next of kin and/or Client advising them of the situation and the locality of the casualty.

1.5.1 Requirements of the Procedure

The following general procedures apply to all Medevac cases, as modified by the vessel operator's specific Medevac procedures. Coastguard and coastal radio stations have immediate access to recognised medical authorities and will only mobilise a helicopter on advice from a medical authority. Any requirement for Medevac shall be passed to the Coastguard to co-ordinate the Medevac. In more remote areas, this function may fall to the Client's local office or other Fugro offices in the vicinity.

1.5.2 Medevac by Helicopter

- Instigate Emergency Response Procedure.
- Stabilise the casualty, where possible.
- The Paramedic aboard the vessel will be responsible for treating the casualty.
- Prepare the casualty for transfer to a helicopter.
- Prepare documentation of known medical details and personal information. Secure it to the casualty in a waterproof cover.
- The vessel and helicopter shall remain in radio contact throughout the Medevac.
- Adequate communications shall be set up between the bridge and the pick-up point on the vessel.
- If a hoist is used, the helicopter will lower a guideline attached to a hoist wire and harness. The guideline must be allowed to discharge static electricity by touching the vessel or sea before anyone touches it. The guide wire or harness must not be attached to the vessel in any way.
- The pick-up area shall be cleared of any obstructions or hazards to the helicopter, rescuer or casualty. This includes loose objects likely to be blown about by the helicopter's down draught.
- Move the casualty nearer the pick-up point if possible (depending on the casualties injuries). If in doubt, await instructions from the rescuer.
- If one of the helicopter crew does not accompany the casualty, a member of the ship's crew should accompany the casualty on the same line, especially if a 'horse collar' type of sling is used.
- Party Chief is to finalise the Incident Report to Fugro GEOS and Client.

1.5.3 Medevac by Vessel

- Instigate Emergency Response Procedure.
- Stabilise the casualty, where possible.
- The Paramedic aboard the vessel will be responsible for treating the casualty.
- Prepare the casualty for transfer to another vessel.
- Prepare documentation of known medical details and personal information. Secure it to the casualty in a waterproof cover.
- Party Chief is to finalise the Incident Report to Fugro GEOS and Client.

1.6 Emergency Contacts

Project specific emergency contacts are detailed in Appendix D and the accompanying flowchart. It is the responsibility of the Operations Manager to ensure that this is correct at the time of issue to the Party Chief and to re-issue it as required.

1.7 Emergency Communications

During an emergency, telephone traffic in the office should be kept to a minimum, leaving communications lines as free as possible. The Operations Manager should give the receptionist clear instructions to this effect. Communications with the vessel, vessel owners and Client should be opened as soon as possible. Depending on the severity of the incident, lines may be kept open if necessary.

1.7.1 Press Statements

It is essential that any information given to the press is well co-ordinated and consistent with that issued by other parties involved. It is in the interests of all parties to have the facts reported correctly and in a proper fashion, so not to jeopardise any future investigation or unnecessarily alarm next of kin. A Director must approve press statements, following liaison with the Managing Director.

Personnel disembarking the vessel following a major incident or disaster, who are faced by the press, should refrain from making any comment.

In the early stages of a major incident or disaster it is preferable to produce a controlled, written statement of the facts rather than committing to ad-hoc interviews. Interviews may be organised at a later date, when information is clearer and confirmed.

Press statements must only be issued with the full knowledge of Fugro GEOS, Client, vessel owners and other authorities involved (e.g. coastguard) and be mutually agreed prior to release. It is important to deal with the press with confidence and speed to prevent unnecessary and possibly damaging speculation.

1.8 ERP Flow Charts

Contact names and numbers are to be provided in the Project ERP.

SP227: PROJECT MOBILISATION & OPERATIONS

1.1 Safety Procedures Prior to Mobilisation

Safety procedures prior to mobilisation shall be identified during the Project Risk Assessment and are outlined in Appendix C, Project Specific Hazard Identification and Risk Assessment to the Project Specific HSE Plan.

1.2 Joining Vessels

This section describes the procedures for joining a vessel, rig or platform prior to offshore operations. It shall apply to all marine operations under the direct control of the Company, where a third party vessel is to be used, or where operations are onboard a rig or offshore structure. The Project Manager is responsible for ensuring this procedure is adhered to and once aboard, the Party Chief will ensure personnel under his supervision adhere to this and vessel owner's specific procedures.

By their nature, vessels are potential sources of serious health, safety or environmental hazards. In addition, joining a vessel in a foreign port may raise complications (medical and bureaucratic) which may be avoided. Such problems are frustrating, time consuming, and potentially very expensive in lost time.

1.2.1 Essential Items

When travelling offshore, essential items include (but is not limited to):

- A valid passport or seaman's document.
- PPE: As per the PPE Assessment
- Weatherproof clothing.
- Personal safety log and valid medical certificate.

1.2.2 Other Considerations/Prohibited Items

In addition, the following should be considered, depending on the country of operations, local or Client ruling, climate and other determining factors:

- Inoculation certificates.
- Prescribed medication.
- Hot or cold weather clothing.
- Sun protection.
- Letters of invitation from local representative companies.
- Swim test certificates.

Personnel should be aware that the following are prohibited onboard vessels, or when transiting through airports / country borders. Possession may lead to arrest and prosecution:

- Alcohol.
- Drugs, unless prescribed by a doctor.

- Weapons of any description. (The list of such weapons has broadened and should be checked with your regional logistics co-ordinator.)
- Obscene materials and 'hardcore' pornography.
- Other items depending on local ruling (including some foodstuffs).

Other prohibited items may include those identified by the Client as being inappropriate to wear, carry, use or otherwise. These items may include:

- Jewellery
- Knives

It is advisable to check which items may not be allowed prior to mobilisation. These requirements should be identified during preparation of the Emergency Response Plan (SP226).

1.2.3 Arrival Onboard

On arrival onboard the vessel, personnel will be required to submit the following information to the vessel's Master, or his representative:

- Full name.
- Date of birth.
- Next of kin.
- Company name.

The Master will allocate cabin accommodation. Personnel should check their designated muster point, life saving and fire fighting equipment in the immediate area and escape routes from the cabin by studying the Vessel Safety Plan, usually posted in the accommodation area.

1.3 Loading/Offloading Equipment (by Crane)

Refer to Procedure SP229 for the procedures for manual handling and lifting equipment and stores by crane in a marine environment.

1.4 Transportation by Boat

Refer to Procedure SP229 for the procedures for personnel being transported by boat and boat-to-boat or boat-to rig/offshore installation transfers.

1.5 Vessel Safety Audit

This procedure shall apply to all marine operations under the direct control of the Company, where a third party vessel is used. The Project Manager is responsible for ensuring this procedure is adhered to, and should direct the Party Chief accordingly.

Fugro GEOS does not operate its own vessels and rely on third party service providers for all marine operations. The standard of vessel available for charter varies considerably worldwide and it is imperative that all vessels are assessed to the same basic minimum HSE standards.

1.5.1 Vessel Safety Audit Checklist

The Party Chief should conduct a vessel safety audit using the Vessel Safety Audit Checklist SP406. The completed document forms part of the contract documentation. The checklist is to be completed and signed by the Fugro GEOS Party Chief on satisfactory completion of pre-mobilisation checks. Wherever possible, the vessel audit should be done prior to acceptance of the vessel on charter.

1.5.2 Failure of a Vessel to meet Audit Standards

Should a vessel fail to meet the audit requirements, the Party Chief should immediately contact the Project Manager. In consultation with the Party Chief, vessel owners and Client, the Project Manager will advise on action to be taken. This may include any of the following:

- Liaise with vessel owners over corrective action.
- Seek an alternative vessel.
- Other courses of action, as appropriate.

The Company will support the Party Chief in his decision not to use the vessel, should he feel that the vessel is unsafe.

1.6 Safety Induction Tour

A safety induction tour shall be arranged before the vessel leaves port. It is to be conducted by the vessel's Safety Officer and will comprise the following:

- Locations of fire escape routes.
- Locations and operation of life rafts.
- Locations and use of fire appliances, life saving apparatus (immersion suits, life jackets, smoke hoods), and breathing apparatus.
- Locations, operation and characteristics of emergency alarms.
- Locations and use of vessel's intercom.
- Muster stations.
- Other safety equipment and/or procedures specific to the vessel.

1.7 Emergency Drills

Emergency drills shall be held regularly and shall be taken seriously by all concerned. All staff must be familiar with the safety and emergency procedures appropriate to their location. This section defines the type and frequency of drills for offshore operations and requires that a log of all emergency drills be maintained.

Rigs and offshore installations have their own procedures with which Fugro GEOS employees and sub-contract personnel must comply. These are covered during the induction tour of the installation. It is

essential that all staff know the procedures for a drill or an actual emergency situation. Details of the procedures are posted on the installation's Station Bill.

Aboard vessels, it is the Master's responsibility to organise emergency drills according to the SOLAS Guidelines. The Party Chief shall liaise with the Master to ensure that an emergency drill is held within 48 hours of leaving port and thereafter weekly. During all drills Fugro GEOS employees and sub-contract personnel shall follow and obey all instructions issued by the vessel officers and crew.

1.7.1 Abandon Ship

On hearing an alarm, take the following actions:

- Proceed to respective muster stations (as advised in the induction).
- If possible without causing undue delay or blockage of personnel movement, personnel in accommodation areas should gather lifejackets and immersion suits.
- If time permits, don warm clothing and take spares to the muster point.
- Once at the muster station, don lifejackets (personnel will be expected to know how to do this without supervision or instruction).
- A roll call will be conducted to ensure all personnel are accounted for.
- Remain silent and listen to the instructions being given by the vessel's officer in charge.
- Never argue with vessel staff in charge of a situation.
- If instructed to embark a life raft, do so in an orderly manner. Fill the furthest seats first. Strap in. Do not panic.
- If it is drill, disembark the life raft when instructed to do so by the vessel's officer in charge. Remain in the area until informed to do otherwise.
- Return all safety equipment to its original location. Replace appliances correctly, ensuring they can be easily removed in emergency.

1.7.2 Emergency Response Drill

Refer to the ERP for the procedures to be followed in the event of an emergency situation arising offshore, where a drill may be organised to confirm emergency response contacts and numbers.

1.7.3 Fire Fighting

Procedure SP229 details the procedures to follow should a fire or explosion occur aboard a vessel and the Master should follow this procedure during a fire fighting drill.

1.7.4 Man Overboard

Procedure SP229 details the Man Overboard procedure and the Master should follow this procedure during a MOB drill.

SP228: HAZARD IDENTIFICATION, RISK ASSESSMENT & CONTROL

1.1 Introduction

This procedure describes how Fugro GEOS should identify and deal with hazards, how risk assessments should be undertaken and how to act on the findings to reduce the risks associated with our activities. It defines the process of identifying and quantifying the hazards in all our activities, for assessing the risk using basic numerical values for severity and likelihood and the procedures for acting on the findings.

For marine operations it is the responsibility of the Party Chief in co-operation with the vessel's Master to ensure that this procedure is carried out. The results of the Project Specific Hazard Identification and Risk Assessment are to be documented.

1.2 Definitions

Accident. An undesired event which results in actual loss (i.e. injury to personnel, impact on or release to the environment, property/equipment damage and/or productivity loss.

Competence. The ability to be able to perform an activity to the expected standard.

Competent Person. A person who, by reason of their training, knowledge and experience, is considered capable of adequately assessing the Health, Safety and Environmental risks associated with the task(s).

Controls. Precautionary measures which reduce or eliminate risk.

Hazard. A condition in the workplace, equipment, or a method of carrying out an activity which has the potential to cause harm.

Hazard Effect. The potential outcome/consequences of the relevant hazard.

Likelihood. The expectation, possibility or chance of something happening.

Residual Risk. The risk that remains after all the identified control measures have been put in place.

Risk. The result of the Hazard Severity x Likelihood.

Risk Rating. A means of expressing the risk in terms of a value that represents both its likelihood and severity.

Task. An individual work assignment being a job or part of a job carried out by one or more persons.

Toolbox Talk. A meeting, involving a two-way dialogue, to ensure that everyone clearly understands what the job entails along with its hazards and the precautions to be put in place.

1.3 Risk Assessment

It is a requirement of legislation, and also good company practice and common sense, that all work tasks should be subject to an assessment of their risks. This is in order to identify the controls and precautions necessary to undertake the work safely. Generally, the assessment can be reduced to six questions:

- What could go wrong?
- How likely is it to go wrong?
- What would happen if they occurred?
- What are the associated risks?
- Are the risks acceptable?
- How can the risks be reduced?

Fugro GEOS HSEMS safety documentation has been prepared as a set of procedures, each of which relates to a specific activity area. Risk assessments have been broadly separated into marine operations and office/workshop based activities. Each procedure has a reference number in the HSEMS and risk assessments refer directly to the procedure number. The establishment of these generic risk assessments means that some activities such as manual handling and travel may be included in more than one assessment.

1.4 Initial Appraisal

When a task is identified, the first action is to establish what it will involve. This initial appraisal should identify the need for any special safety assessments and identify at the outset if it is clearly obvious that the task cannot be carried out safely. If the likely hazards cannot be reconciled at this stage, then the task should be rejected or redefined.

1.5 Hazard Identification

Before a risk assessment can be completed, the hazards must be identified, the risks assessed and controls / precautions required to mitigate the risks identified. Where a task comprises a number of separate activities, these should be broken down into individual tasks and assessed separately. The extent of controls identified will depend upon the level of risk associated with the task. The higher the risk, the greater the degree of control.

A new risk assessment will not be required for every task. Where a task has previously been assessed, or is covered by a procedure, it may not need a new risk assessment. Where this is the case, the previous assessment or procedure should be reviewed to ensure that the hazards and controls are still relevant and that any site or job specific controls are identified. For low-risk tasks performed by competent people, no formal recorded risk assessment is required as the individual's competence and skill covers this.

New activities requiring a formal hazard identification and assessment shall include but not be limited to:

- Introduction of major new systems of equipment.
- Significant changes in work practices.
- Mobilisation of new operations in existing operational areas.

- Mobilisation of operations in remote areas.
- Mobilisation of operations in harsh or sensitive environmental conditions.
- Mobilisation of operations in areas of political unrest.

Hazards are best identified by examining what is involved in each part of the activity, in the order that they are carried out. Those who carry out the work together with someone who is familiar with safety procedures and statutory requirements should perform the hazard identification. It is essential that all hazards are identified and listed. Do not dismiss any on the grounds of irrelevance or scale, as that will be done during the subsequent risk assessment process.

Risk assessments of this nature will require individual's to have the required competence and skills to accomplish this task.

1.6 Personnel at Risk

Once all hazards have been identified, the UK Management of Health and Safety at Work Regulations require employers to note any group identified as being especially at risk. The important factors to consider in categorising persons are the age, sex, state of health etc of those at risk. An example could be young, inexperienced employees working on an offshore installation. In Fugro GEOS' operations, the identification of a person(s) at risk is relatively simple.

1.7 Risk Rating

Risk rating is a means whereby the risks associated with a particular task can be expressed as a numerical value and so judged to be within acceptable limits. Risks created by each identified hazard should be evaluated according to:

Hazard Severity. The highest risk that could reasonably be expected without control measures.

Likelihood. The likelihood of occurrence of the risk after control measures have been implemented. Control measures could include:

- Specific Fugro GEOS HSE Procedures.
- Vessel owners HSE Procedures.
- Client HSE Procedures.
- Fugro GEOS Technical Instructions.
- Other documentation.

Any other practicable control measure not covered above.

The Risk Rating is calculated as Hazard Severity x Likelihood and is shown in the following table:

		Hazard Severity				
		1 - Negligible Negligible injury, no work absence	2 – Slight Minor injury requiring first aid treatment	3 – Moderate Injury leading to a lost time accident	4 - High Involving a single death or serious injury	5 – Very High Multiple deaths
Likelihood of Occurrence	1 - Very Unlikely A freak combination of factors would be required for an incident to result	1	2	3	4	5
	2 – Unlikely A rare combination of factors would be required for an incident to result	2	4	6	8	10
	3 – Possible Could happen when additional factors are present otherwise unlikely to occur	3	6	9	12	15
	4 – Likely Not certain to happen but an additional factor may result in an accident	4	8	12	16	20
	5 – Very Likely Almost inevitable that an accident would result with no additional factors prompting it	5	10	15	20	25

The above resultants represent the Residual Risk once all the controls have been identified and put in place. Finally, depending on the score as stated below, review the Residual Risk, determine whether the task needs redefining or additional control measures are required and then re-assess the risk before proceeding.

2 – 6 May be acceptable; however, review task to see if risk can be reduced further.

7 – 14 Task should only proceed with appropriate management authorisation after consultation with specialist personnel and assessment team. Where possible, the task should be redefined to take account of hazards involved or the risk should be reduced further prior to task commencement.

15 – 25 TASK MUST NOT PROCEED. It should be redefined or further control measures put in place to reduce risk. The controls should be re-assessed for adequacy prior to task commencement.

A more comprehensive description of Hazard Severity in the above table is as follows:

1 – Negligible	Slight injury or health implications with no absence from work. Little or no loss of function / production with no damage to equipment or the environment.
2 – Slight	Minor injury requiring first aid treatment or headache, nausea, dizziness, mild rashes. Damage to equipment requiring minor remedial repair, loss of production or impact on the environment.
3 – Moderate	Event leading to a lost time incident or persistent dermatitis, acne or asthma. Localised damage to equipment requiring extensive repair, significant loss of function / production or moderate pollution incurring some restitution costs.
4 – High	Involving a single death or severe injury, poisoning, sensitisation or dangerous infection. Damage to equipment resulting in production shutdown and significant production loss. Severe pollution with short-term localised implications incurring significant restitution costs.
5 – Very High	Multiple deaths, lung diseases, permanent debility or fatality. Major pollution with long-term implication and very high restitution costs.

1.8 Record Keeping

The findings of the risk assessment shall be documented and shall cover the following:

- Identification of job steps.
- Hazards associated with the task.
- Control measures to reduce the risk.
- Residual risk rating.
- Name of assessor(s).
- Date of assessment.

The findings may be recorded using either of the two templates available. One template is a comprehensive quantitative method and the second is a simpler non-quantitative method.

1.9 Undertaking the Task

Prior to undertaking the task, the appropriate approval should be sought and a pre-task briefing or toolbox talk should be held. It is essential to communicate the hazards, controls and individual responsibilities to the rest of the work team and engage everyone involved in the final stage of the risk assessment process. The latter is an important opportunity for the whole team to identify any additional hazards and controls, especially those specific to the site and the local conditions.

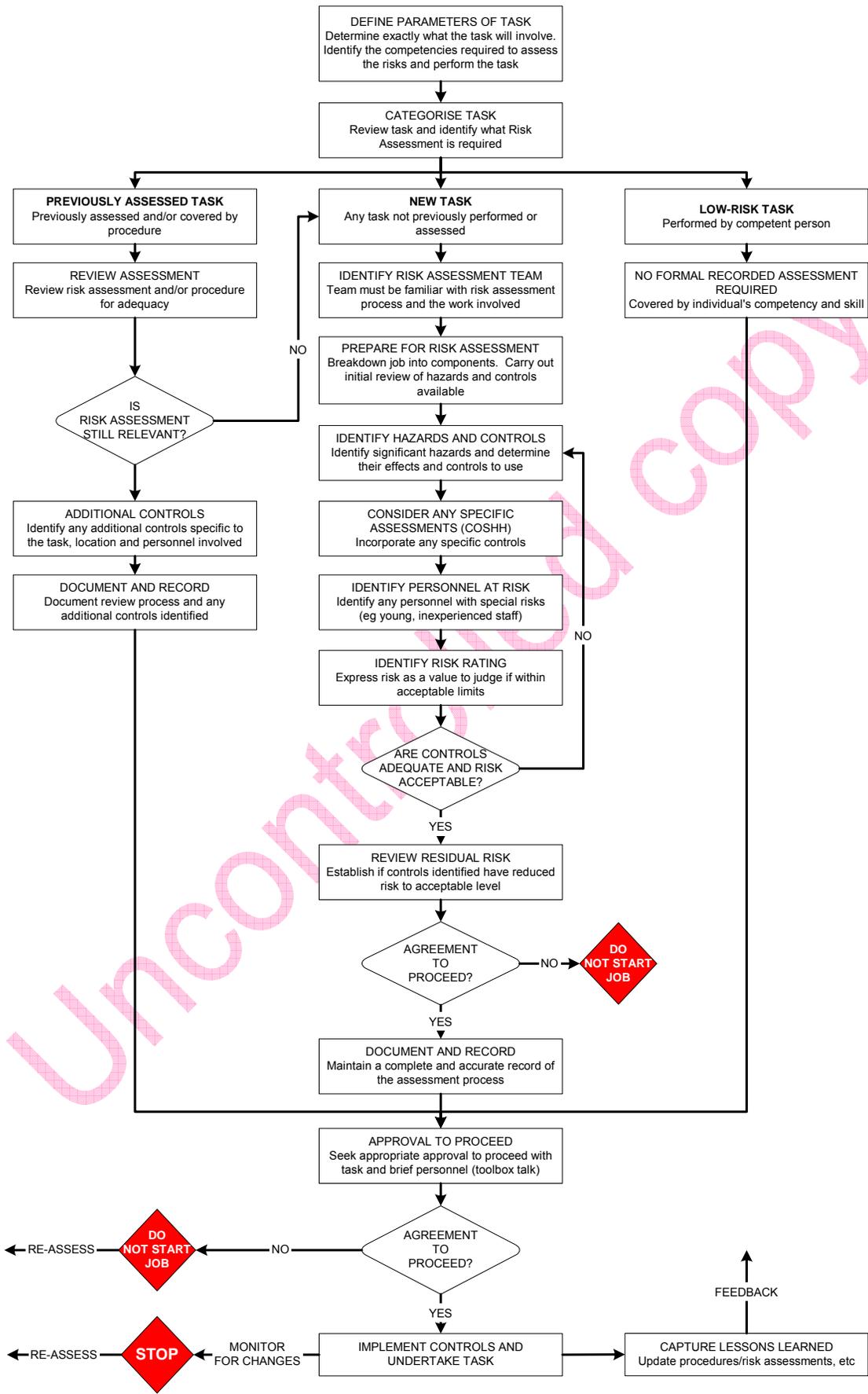
Once the task commences it is important to monitor the work site for any change in conditions that might alter the hazards or controls in place. If there is any concern, stop the work, re-assess the controls and, if necessary, re-plan and re-assess the task.

On completion of the task, it is important to capture any lessons learned and make improvements for next time.

All employees have a duty and responsibility to themselves and the other team members to STOP THE WORK at any time they are concerned about safety.

Any employee's decision to stop a job on safety grounds shall be supported by the other team members and managers even if it turns out to be based on false reasoning. It is better to stop a job and re-assess it, than continue and risk an accident.

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SP229: GENERAL MARINE HSE PROCEDURES

1.1 Introduction & General Procedures

Document SM102 details the general procedures and principles of Fugro GEOS' Health and Safety System. This Safety Procedure details the general safety procedures applicable to marine operations. In turn, this procedure is supported by a number of task-specific procedures, which are described in this and other sections of this manual. In addition, some safe working practices described in this Safety Procedure are also applicable to non-marine operations and environments.

It is the responsibility of the Project Manager to ensure that this procedure is implemented for operations under their control. Responsibility for the vessel and all personnel onboard is firmly vested in the Master by law. The Party Chief, in co-operation with the Master, is responsible for the scientific crew and equipment. In the context of this procedure, 'vessel' may refer to ships, rigs, platforms or other offshore installations.

1.2 Work Place Environment

Scientific personnel assigned to conduct marine operations on seagoing vessels may not have a marine background and must make a conscious effort to acquaint themselves with the safety practices required to eliminate and/or control hazards.

All Fugro GEOS operations shall be carried out in accordance with documented safe working practices. Safety guidelines, rules and considerations must take precedence over any operational requirements or instructions that are contrary to accepted safe working practices.

Reference shall be made to the Fugro GEOS' HSE Policy and Manual, vessel owner's Safety Manuals, Client Safety Policy and experience gained on safety courses. Management shall resolve any conflict.

1.2.1 Pre-Sailing Head Count

Before any vessel leaves port it is essential that the Party Chief in co-operation with the Master, checks and records that all personnel are aboard. If any persons cannot be accounted for after thorough checking, the Project Manager or duty officer must be informed and, with the Master and Party Chief, decide on the course of action to be taken. Every effort shall be made by the Master and Party Chief to ensure that no unauthorised persons sail with the vessel.

1.2.2 General Safety

Access To Ships

The journey to the port is often the most dangerous aspect of joining a vessel. Port areas are known to attract criminals, particularly muggers and opportunist thieves. Therefore, take care when moving through a dock area, particularly at night. Quaysides should be avoided and any designated routes must be followed. Any defects or inadequacies found in any access arrangements, including those provided by the dock authorities, shall be reported.

All means of access must be effectively illuminated, kept free from obstruction, and as far as is reasonably practicable, clear of anything likely to cause a person to slip, trip or fall.

A safe gangplank, with a handrail on at least one side and a safety net, must be used when boarding or disembarking. The gangplank must not be too steep and shall be moved and made safe when tidal levels change. Where the in-board end of the gangway rests on, or is flush with, the top of the bulwark, a suitable bulwark ladder shall be provided, properly secured and fenced. Where a gangplank cannot be used, extra care should be taken boarding or disembarking.

Always hold the handrail when using stairs or moving equipment etc across the gangplank and obtain assistance with any awkward loads. In the first instance, consider using mechanical lifting equipment. Refer to SP241.

Access to Rigs and Offshore Facilities

The Client (or its operator) will normally arrange access to such facilities. Personnel shall observe the operator's standing procedures. These may comprise at least the following:

- Induction tour of vessel
- Allotment of muster and lifeboat stations.
- Checking of PPE.

If the Induction Tour is not forthcoming, personnel should request this.

Doors, Hatches, Passages and Walkways

Keep all watertight doors and hatches closed and latched while at sea and only open them for passage. Know the correct latching procedures and bring any problems with these doors to the Master's attention. Never risk a hatch or door falling or swinging closed on you.

Moving Around Ships, Rigs, Etc

Be aware that there may be no warning of an unusual lurch or heavy roll, which may catch you off balance. This is particularly important when carrying material and equipment or negotiating ladders or stairways. Remember to use the handrails. Take care to avoid head injury when stepping on to storm steps, sills or other obstacles.

Permanent fittings, which may cause obstructions or are potential trip hazards, such as eye plates on deck, lashing points and projections, are to be painted a conspicuous colour in contrast to the background. All unnecessary or redundant fittings or projections shall be removed. Any gear or equipment stowed to the side of a walkway or on the deck head must be securely lashed. Areas that are likely to become slippery must be suitably treated with a non-slip coating. If slippery conditions occur, appropriate action shall be taken.

Keep clear of hazardous areas unless prior clearance is given.

Do not go on deck after dark or during poor daytime weather conditions without advising a responsible person of your intentions and inform that same person when you return. Always wear a work vest / lifejacket in these situations.

Lighting

All work areas, passageways and walkways shall be adequately illuminated and broken or defective lights must be reported and repaired as soon as practicable. Portable lighting is to be avoided but where necessary it must be suitable and safe for the intended use. Lights shall not be switched off or removed without checking that all personnel are out of the illuminated area.

Equipment, Tools and Materials

See also SP324.

All high voltage electrical, high-pressure compressed air and hydraulic systems must be treated with caution and safe-working practices followed even when they are not in use. Refer also to SP239.

All equipment must be carefully checked, used correctly and secured at all times. Loose equipment and poorly stored tools and consumables may be damaged or lost or may cause injury during bad weather.

The proper tools shall be used for every job. Tools used for a purpose for which they were not designed may cause injury and damage to the tool. Damaged or worn tools shall not be used. If repairable, this shall be carried out by a competent person before re-use.

Only competent persons shall operate equipment. See SP224.

Power operated tools may be dangerous unless properly maintained, handled and used. Manufacturer's instructions must be followed. Double insulated tools are not recommended on ships because water can provide a contact between live points and the casing, increasing the risk of a fatal shock when the tool is used. The power supply lead and connections shall be inspected before a tool is used.

Power tools must be properly earthed and the fuse on circuit breakers shall be of the minimum rating practicable. Portable equipment must never be lowered or suspended by their lead. The leads shall be kept clear of running gear, moving parts of machinery, equipment and loads. If they pass through doorways, the doors shall be secured open. They should be kept out of walkways as far as practicable to prevent tripping. Any slack shall be coiled. Doors used for fire or watertight subdivision of the vessel are to be secured open only under strictly controlled conditions and with the permission of the Master, with personnel standing by to close the doors in the event of an emergency.

Safety guards shall be used and shall be fixed securely. Power tools must be switched off and disconnected from the power source when not in use and left in a safe manner.

Swarf shall not be allowed to pile up round a machine. The machine shall be stopped for removal of same. A rake or similar device may be used for this purpose, never the bare hand.

Accessories on tool pieces shall be absolutely secure in the power tool or machine and shall not be fixed or replaced while a source of power is connected.

Where the work operation causes high noise levels, hearing protection shall be worn. Where flying particles may be produced, the face and eyes shall be protected with appropriate personal protective equipment. Dust masks or respirators shall be worn if necessary. Refer to SP230.

Radio, Radar, Laser and Associated Equipment

Treat radio, radar and navigation antennae with caution. Contact and exposure to radiation can cause severe burns, eye and tissue damage. Exposure to dangerous levels of microwave radiation should be avoided by strict adherence to instructions contained in manufacturer's manuals.

1.3 Back-Deck Safety

The back deck of a vessel is potentially dangerous at all times and care must be taken when moving around or working on the back deck, whether the vessel is alongside in port or offshore.

PPE shall be worn as required by SP230, Life Saving/Personal Protective Equipment.

Great care shall be taken during mooring deployment or recovery operations. Reference shall be made to SP231, Mooring Equipment Deployment & Recovery.

1.4 Boat-to-Boat Transfers

Transfer of personnel at sea will only be allowed in certain circumstances and with the Client's approval, except in the case of Medevac (See SP226). It must only take place under the direction and supervision of the Master or a ship's officer. A transfer must not take place in darkness, unless the urgency of a Medevac dictates otherwise. The prevailing weather conditions must be taken into account and assessed before any attempt is made to transfer personnel. During any transfer appropriate PPE including a lifejacket shall be worn (see SP230). Take care to observe and obey all instructions given by the deck crew.

Basket transfers boat-to-boat or to/from a rig or platform will only be allowed in exceptional circumstances. As above, PPE including a lifejacket shall be worn and take care to observe and obey all instructions given by the crane operator and/or the deck crew.

If transferring between a survey vessel and a small boat (such as a Gemini or rib), Procedure SP233, Small Boat Operations shall be observed.

1.5 Winches

This procedure describes how high pressure air systems shall be installed and operated and who shall be responsible for carrying out the procedures. It applies to all personnel using high-pressure air systems on Fugro GEOS' operations. Generally, the vessel's chief engineer or a designated person shall supervise the installation of air winches.

High Pressure Hydraulic Systems. Fugro GEOS does not own or operate hydraulic systems in the majority of its work. Should a situation arise where there is the need to install and operate a hydraulic winch, the general principles detailed in the following paragraphs will apply. However, expert help must be sought before installing or operating one of these winches. If a vessel's own hydraulic winch is being used for handling mooring wires, it shall only be operated by a competent member of the ship's crew as authorised by the Master. Fugro GEOS personnel involved in operations shall be competent to perform the duties expected of them. See SP224.

Installation

Initial installation of compressed air systems shall be carried out in accordance with the manufacturer's specifications contained in the operating manual. Particular attention shall be paid to:

- Provision of a proper and adequate foundation
- Unobstructed access to parts of the system
- Correct functioning of any devices
- Protection for the system to avoid mechanical damage.
- Unobscured or unobstructed marking, unless the marks are repeated on a visible data plate.
- The space around and beneath drain valves on air receivers, sufficient so that they may be reached easily and so that condensation can flow from the valve.
- The installation of compressors, which shall be in a well-ventilated, cool and clean air environment
- Inlet air to compressors, which shall be drawn from an area that is free from potentially flammable or corrosive concentrations of fumes or vapours, or air excessively laden with moisture or dust.

The system shall be powered up and a function test performed on completion of any installation or maintenance work. The work area shall be cleaned ensuring that all spillage of compressor hydraulic oil is washed up and used oil is disposed of correctly. Personal hygiene and the laundering of clothing is particularly important if there has been contact with hydraulic fluid, since contaminated oil may cause skin irritation problems.

Operating & Maintenance Procedures

Compressed air installations shall only be operated within the manufacturer's safe operating limits, as certified by a certifying authority or as set by vessel guidelines. In the event of any conflict between two pressure operating limits, the lower one is to be used. All operating procedures shall be in accordance with the manufacturer's manual. Clear operating instructions must be established covering the following:

- The circumstances in which the compressor may be shutdown, e.g. when specific operating limits are exceeded.
- Clear and concise instructions on the emergency shutdown procedure.

- The Lockout Tagout and Permit to Work procedure to be followed during system maintenance or repair. (See SP240)
- Instructions for the checking and topping up of compressor lubricants, where appropriate.
- Instructions for draining of receivers, inter-coolers, after-coolers, pipe work etc.
- Instruction regarding the keeping of operating logs or running records.
- The purpose and operation of protective devices.
- Instructions regarding the need for good housekeeping, in particular where dirt and / or spillage may affect the operation of or obscure any protective devices.
- Warnings of the dangers associated with the removal of covers or pipe work before residual pressure has been vented.
- Instructions on the thorough cleaning of receivers at the time of examination.

Operating the System

Pre-Start Checks:

- On some vessels, air hoses are also used for water. Ensure that hoses are blown through to clear moisture from the hoses before attaching to the winch.
- Air hoses shall be securely and correctly connected to the winch. Check that connection ends on the hose and winch are not excessively worn. Fit split pins, if appropriate holes are provided, to prevent the connectors coming apart. Use wire loop connectors on each joint of the air line and on the winch to restrict the movement of the air line should it disconnect in use.
- Do not switch on the air supply until the hoses are connected and secure. A disconnected, pressurised line could 'snake' across the deck, causing injury to personnel and damage to equipment. Air hoses must never be pointed towards people as escaping high-pressure air may cause injury.
- Conduct a visual check for leakage and/or malfunctions.

Operating Precautions:

- Wear appropriate personal protective equipment
- Take care to ensure that winch wires do not become kinked or twisted
- Body parts and loose clothing shall be kept away from the drum.
- The wearing of jewellery, and in particular rings, is ill-advised, as these may catch on the wires or other equipment parts and cause injury.
- Take care when wearing gloves. They may catch on wires, pulling the hand into the winch drum.
- The winch operator shall be aware of what is happening around him and be prepared to stop operations if he considers it necessary
- Only one person shall give instructions to the winch operator.
- Follow wire handling procedures (see SP231, Mooring Equipment Deployment & Retrieval).

System Failure

If there is a failure of a high-pressure device or any part of a high-pressure system, the system shall not be operated until satisfactory repairs have been made and the system is pressure tested and where appropriate re-certified by a competent person.

1.6 Lifting & Hoisting

Procedures for lifting with the aid of mechanical lifting equipment are described in SP241.

In summary, always:

- Plan carefully the lift (See also SP404)
- Carry out a risk assessment, reducing all residual risks to as low a level as reasonably practical with appropriate mitigation measures (See also SP228, SP401 and SP230)
- Check the equipment and the load
- Check the environment
- Carry out a toolbox talk, ensuring all personnel are competent and understand what is required of them (See also SP403 and SP224)

before commencing lifting operations

The Party Chief is responsible for ensuring these procedures are adhered to.

1.7 Stepping, Handling & Lifting

This section details the procedures for the manual handling of office and workshop stores. All persons are responsible for ensuring the procedures are adhered to. Manual handling is the largest single cause of injuries at work. Not only heavy loads cause injuries and relatively light objects picked up and carried awkwardly can cause major damage. It may only take one manual handling accident to disable an employee permanently. It is the individual's responsibility to follow procedures and to take care of themselves and others who may be affected by their acts or omissions.

General

The best way of preventing harm is to avoid manual handling, so think before acting. Consider using cranes, winches or other aids to assist in handling loads more efficiently and safely.

In planning and risk assessing for manual handling, consider the following aspects:

- **The Task:** For example, Team handling, improve the task layout
- **The Load:** For example, Use of mechanical aids, Split the load
- **The Working Environment:** For example, Removing space constraints, good housekeeping
- **The Individual:** For example, Competency, capability, efficient use of the body, PPE

Personal lifting weight limits are not specified because everyone has different capabilities and it is not only heavy loads that can cause injury. To reduce muscular fatigue, try to intersperse periods of heavy or repetitive work with lighter activities. If you experience difficulty in moving a load do not struggle with it, seek assistance. Report any difficulties in handling loads (including health problems) to your Supervisor or the HSE Representative. If you hurt your back seriously, DO NOT MOVE. Movement could make an injury worse, so rest until medical help arrives.

Injuries occur when, for example:

- Using the wrong techniques
- Bending, stretching or twisting to reach loads
- Handling large, awkward or heavy loads or those that are difficult to grasp
- Carrying loads over long distances for long periods or in an area where the floor surfaces are cluttered, uneven or slippery
- Working in uncomfortable positions for long periods
- Working with the upper limbs in extreme positions
- Applying a force repetitively

Dangers include:

- **Strains and Sprains.** Lifting awkwardly or repetitive movements can cause injury, permanent or temporary, to muscles or joints (for example, ruptured cartilage / “slipped disk” / “tennis elbow”)
- **Wounds.** Incorrect handling of loads without gloves can result in lacerations or crush injuries.
- **Bruises and Fractures.** Dropping a heavy load can lead to broken bones or crush injuries.
- **Slip, Trip Fall:** Unsafe environment can lead to this
- **Hernias.** The strain of lifting, when carried out incorrectly, can cause very painful ruptures in the abdominal wall.
- **Load Damage:** Incorrect lifting techniques, poor stacking of loads or trying to handle too much at once can cause damage to the equipment or load you are trying to handle

Lifting & Carrying

When lifting and carrying during marine operations, wear PPE appropriate to the task. (See SP230).

The load distribution must be established before attempting the lift. It may be unevenly distributed or have an offset centre of gravity. All loads must be secured to prevent them sliding whilst being moved or being affected by vessel movement or other environmental factors.

- Do not straddle the vessel and dockside at any time. This may be tempting when loading stores aboard but must be actively discouraged. Light stores may be carried across the gangway or in extreme cases passed over the ‘garden wall’ of the back deck, but do not over-stretch.
- When carrying loads watch for trip or slip hazards. Seek assistance to guide you if required.
- Take the easiest (not always the shortest) route whenever possible. Avoid narrow doorways, stairs, steep ladders or tight bends. If unavoidable, ensure you can see where you are going. Seek assistance where necessary.
- If equipment is to be loaded aboard the vessel then manually moved inside the vessel, have the crane position the load as near as possible to the most suitable entrance. Do not block emergency exits or cause unnecessary obstruction.
- Remember the adage, “One hand for the load and one hand for the rail” when you are on stairways.

Lifting Technique

Learn to lift safely and observe the following ten points:

- **Stop and think.** Plan the lift.
 - Do you need to lift the load?
 - Do you need help?
 - Where is the load going to be placed?
 - Remove obstructions?
 - Is the use of a sack trolley or other mechanical aid appropriate?
 - Do you need to rest the load in order to change grip?
- **Place the feet.** Stand as close to the load as possible, feet apart, giving a balanced and stable base for lifting. Leading leg as far forward as is comfortable.
- **Adopt a good posture.** Bend the knees keeping your back straight and in a natural line. Lean forwards a little over the load if necessary to get a good grip. Keep shoulders level and facing in the same direction as the hips.
- **Get a firm grip.** Grasp the load firmly with the whole of your hands, preferably on diagonal corners, and try to keep the arms within the boundary formed by the legs. If the load is rough or awkwardly shaped, wear protective gloves. Tilt the load if necessary to get a better grip and test the load prior to lifting
- **Raise the head.** Do not jerk the load. Lift it smoothly ensuring that you raise your head as you start to lift.
- **Use your legs.** Lift using your legs and not your back. Hold the load close to the centre of your body as you move, keeping your arms tucked in to avoid putting extra strain on your neck and shoulders.
- **Use your eyes.** Make sure that that you can see where you are going. If the object you are carrying is too big to see over, get help or use a mechanical aid.
- **Move the feet.** Do not twist your body when turning to the side. Always face the place where you are going to put down the load by turning both your feet and body in the right direction.
- **Put down carefully.** Take as much care putting the load down as you did in lifting it. Just because you have reached where you were going, it does not mean that the risk has gone.
- **Ease the load.** In tight spaces, it is much safer to slide the load rather than trying to lift it.

1.8 Cutting & Welding

Fugro GEOS personnel are not permitted to conduct hot cutting, welding or burning operations. A competent and appropriately authorised person shall undertake this. Explicit and precise instructions shall be given to the welders / burners and if the work required is close to other equipment, this is to be removed or protected with welding blankets.

The Master or other authorised officer shall issue a Hot Work permit prior to starting any hot cutting, welding or burning operation. This person is responsible for ensuring that all necessary safety precautions are in place before starting. When the work is complete and before the permit is signed off, the area shall be carefully checked to ensure that it has been left in a safe condition.

1.9 Lockout Tagout and Permit to Work

Refer to Safety Procedure SP240, Lockout Tagout and Permit to Work.

1.10 Fire Prevention

This procedure details how fire or explosion aboard a vessel shall be dealt with and who shall be responsible for carrying out the process. The vessel's Master is responsible for supervising all fire fighting activities or actions following a fire or explosion.

The Party Chief will assist the Master as requested and will keep Fugro GEOS and the Client fully informed of any situation involving fire or explosion.

Fire aboard a vessel is a serious incident. Personnel shall acquaint themselves with the fire fighting appliances aboard and their operation, as different appliances are used for different fires.

The following general procedures may vary from vessel to vessel, in line with the vessel operating procedures. In general, the following fire prevention precautions shall be followed aboard a vessel:

- Many vessels have automatic heat and smoke detectors installed and care must be taken when working near to these devices, e.g. no smoking near smoke detectors. Smoke detectors must not be deliberately disabled. The vessel's Master is responsible for ensuring smoke detectors are serviced regularly.
- Fire fighting equipment is not to be used inappropriately, e.g. fire hoses must not be used to obtain water and fire extinguishers must not be used as doorstops.
- All 'No Smoking' signs must be obeyed.
- All fire access routes must be kept clear. Fire doors shall not be obstructed and must be kept closed. Doors to Halon (being phased out) or foam protected areas must be kept open while occupied and latched shut at all other times.
- Combustible material must not be allowed to accumulate in any location.
- Extreme care is to be taken in the use of compressed gas cylinders. Cylinders must be kept away from sources of heat and stored in the appropriate housing.
- Particular care is to be taken during welding and burning operations.

1.11 Hazardous Material Usage

If there is a requirement to use hazardous materials the following procedure shall be followed.

Fugro GEOS Material Safety Data Sheets (COSHH data sheets) shall be read and handling and storage arrangements must be in accordance with warning labels and instructions. Appropriate safety precautions shall be taken and PPE worn at all times. Arrangements for transport of hazardous materials must be in accordance with appropriate legal requirements and guidelines. Specialist transport or waste disposal contractors shall be used where indicated.

Refer to SP329 for further details.

1.12 Waste Management

As a first principle, Fugro GEOS shall endeavour to minimise the amount of waste generated by its operations. The aim is to use recycled material and components where appropriate and to introduce waste-free processes where possible. No pollutants (e.g. batteries) or waste material may be dumped, thrown or otherwise disposed of into the sea. All refuse and materials shall be disposed of safely in an appropriate manner.

The Master is responsible for ensuring that the vessel has a written Waste Management Plan that meets Annex V of MARPOL 73/78, Act to Prevent Pollution from Ships, that all personnel are aware of its requirements and that it is carried out. All waste generated on the vessel is to be separated and bagged or boxed in designated containers and is to be either incinerated in the ship's incinerator or disposed of at shore side receptacles in accordance with local regulations.

1.13 Man Overboard

This procedure details how a Man Overboard (MOB) situation shall be dealt with and who shall be responsible for carrying out the process. The vessel's Master is responsible for the safe and timely recovery of a man overboard. The Party Chief will assist the Master as requested and will keep Fugro GEOS and the Client informed fully of any MOB situation.

The following general procedures may vary, in line with the vessel operating procedures.

- If witnessing a man falling overboard, immediately throw a life buoy, marker or any other large floating object over the side. Jettison an emergency life raft, if available.
- Inform the bridge using intercom, MOB alarm or voice. The bridge officer shall throw a life belt with smoke marker.
- The navigator shall take an immediate position fix (preferably GPS / DGPS).
- If towing or deploying equipment cease operations immediately, first ensuring equipment is secure and not liable to damage the vessel, equipment or harm personnel. Switch off any in-water equipment where practical.
- At least one person must keep the person in sight. Point at the casualty, ensuring the vessel's Master / helmsman can see where you are indicating. Post additional lookouts if necessary.
- While the vessel reverses course to approach the casualty, the rescue boat is prepared for launch.
- First Aider or vessel's Paramedic to prepare to resuscitate.
- If sufficient personnel are available, recover over-side equipment, unless this is likely to cause an obstruction to rescue operations. If required by the Master, cut towed / over-side equipment free.
- Rescue boat personnel will generally comprise vessel's crew familiar with boat handling / recovery.
- If the casualty is not recovered immediately, or rescue operations are hampered (by weather or structures, etc), the Master will request outside assistance.
- Instigate the Project Emergency Response Plan.
- The Party Chief must report the incident to the Fugro GEOS contact nominated in the ERP as soon as possible and certainly within 24 hours. Should the MOB become a Medical Treatment Case, Major Injury, or Fatality it must be reported immediately.

1.14 Workshop & Storage

Procedure SP324 defines the procedures for dealing with hazards in the onshore workshop and associated stores. Although this procedure does not apply to marine operations, Fugro GEOS employees should be aware of it and should ensure that the principles of the procedure are applied when working in a workshop or stores area aboard a vessel.

1.15 HSE Meetings

Section 7 of the QAM requires that at the start of any project the Project Manager or nominated HSE representative brief all project staff on safety issues giving special emphasis to any specific safety issues that relate to the project. The safety briefing shall be minuted and filed in the contract file.

Procedure SP327 defines how HSE Meetings shall be conducted, their frequency and who shall be responsible for the process.

Once personnel are in the field or aboard a vessel, the Party Chief is responsible for holding an HSE meeting weekly, which shall be attended by the Fugro GEOS personnel, any sub-contract staff and marine crew safety representatives. These meetings shall be minuted and copied to the Project Manager for distribution as required by the procedure.

At each shift change, whether by scientific or vessel crews, a brief Safety ('Tool Box') Meeting shall be held between the off-going and oncoming crew members to ensure that the new shift are made aware of all relevant operational/safety information. In addition, the Party Chief shall brief all personnel before starting any significant operation such as the deployment or recovery of a mooring and shall ensure that everyone is aware of their specific duties and responsibilities ('Tool Box Talk'). See also SP403.

SP230: LIFE SAVING/PERSONAL PROTECTIVE EQUIPMENT

1.1 Introduction & General Guidelines

This procedure is designed to ensure that certain basic duties governing the provision and use of Personal Protective Equipment (PPE) apply to all situations where PPE is required and that PPE is controlled. The procedure applies to all activities under the direct control of Fugro GEOS and is applicable to all employees and sub-contractors. It must be read and interpreted in conjunction with Procedure SP228, Hazard Identification, Risk Assessment and Control.

The UK Health and Safety at Work Act 1974, Personal Protective Equipment Regulations 1992 also apply. These require that every employer shall ensure that suitable PPE is provided to his employees who may be exposed to a risk to their health and safety while at work, except where and to the extent that such risk has been adequately controlled by other means which are equally or more effective.

PPE is defined as being all equipment (including clothing affording protection against the weather) which is intended to be worn or held by a person at work and which protects him against one or more risks to his health or safety, and any addition or accessory designed to meet that objective.

PPE shall not be considered suitable unless:

- It is appropriate for the risk involved and the conditions where exposure to the risk may occur.
- It takes account of the ergonomic requirements and the state of health of the wearer.
- It is capable of fitting the wearer correctly (if necessary after adjustment).
- So far as is practicable, it is effective to prevent or adequately control the risks involved without increasing the risk.
- It complies with any enactment implementing relevant EU Directives applicable to that item of PPE.

It is the responsibility of the Project Manager and Party Chief to ensure that this procedure is carried out.

Employees' Responsibilities:

- To use, care for and store PPE in accordance with any training, instructions and assessments provided.
- To take all reasonable steps to ensure that PPE is returned to the storage provided after use.
- To report immediately any loss of or obvious defect in PPE.

Company Responsibilities:

- To assess the risks to health and safety that may exist.
- To take all reasonable steps to ensure that the PPE provided is used properly.
- To provide PPE free of charge where it is the only effective means of controlling the risks to health and safety.

The following matrix may assist with the provision of PPE:

Assessment of PPE Requirements

Protection	PPE	Work	GEOS Use Examples	Type / Style	Reason	Fit	Care
Head	Helmets	Work where there is a risk of falling objects (hard hat) or impact with objects (hard hat or bump cap)	Work near hoists, lifting gear, cranes etc.	Industrial safety helmet (Hard Hat). HW002 in green HW0305569 chin strap and HW0305579 sweat band	Appropriate for purpose. Green is required for new staff on some rigs.	Appropriate shell size for the wearer and with an adjustable headband, nape and chin strap	Stored in locker when not in use. Visually inspect regularly for signs of damage or deterioration. Clean according to manufacturer's instructions
			Working in or around warehouse racking	Industrial scalp protectors (Bump Caps). HW031007	Appropriate for purpose but does not provide protection from falling objects.	Appropriate shell size for the wearer	
Face	Goggles, face shields	Working with power driven tools, and / or where there is a risk of flying chippings	Sanding / grinding / drilling / hammering or other equipment maintenance in the Workshop	Goggles. EW1006193	Afford the eye total protection from all angles. Can be worn over spectacles. Optically correct. Indirect ventilation	Ensure goggles fit securely, but comfortably to the face	Visually inspect regularly for signs of damage or deterioration. Keep the lenses as clean as possible. Clean according to manufacturer's instructions
				Face Shield. EWCB14	Protect the face, but do not fully enclose the eyes	Adjustable headbands	
Eye	Glasses	Work where there is a risk of flying fragments or chemical splashes	Working with metocean equipment on platforms or vessel in the open air.	Clear Safety Spectacles. EW1002781 Millennia sport clear lens	Low energy impact. Optical class 1. EN166	Flexible fit. Spectacles cord provided	Stored in locker when not in use. Visually inspect regularly for signs of damage or deterioration. Keep the lenses as clean as possible. Clean according to manufacturer's instructions
			Working with metocean equipment on platforms or vessels in bright sunlight.	Tinted Safety Spectacles. EW1005982 Millennia sport grey lens	As for clear lens and further protection against UV light. TSR VLT 92% EN166		
Ear	Plugs, defenders	Work in noisy environments The Control of Noise at Work Regulations 2005	Exposure to noise above first action level (80dba) in any circumstance	Ear plugs. Bilsom 656NST	NRR of 21 dba. Hygienic and convenient	Fit as per instructions on packet	Keep in case when not in use. Clean according to manufacturer's instructions
				Ear defenders. Bilsom HP2817	NRR not as great as for plugs	One size fits all	
Hand	Gloves	Work involving the handling of hazardous substances, materials or tools	Working with detergents	Rubber gloves. GL016 Gauntlets	Suitable for waterproof and some chemical protection	One size fits all	Dispose of once good protection compromised
			Work with detail equipment (e.g. Weather sensors) where hand protection is required	High dexterity Gloves. MAPA Ultrane GL557	High cut resistance and provides close, flexible fit	Snug fit	Maintain according to data sheet provided with gloves.
			General manual work in the workshop, warehouse and on site	Rigger Gloves. Furniture hide rigger gloves GL049	Good palm and finger protection. Manual dexterity id lost when the hands are cold.	One size fits all. However, special small sizes are available if required.	Dispose of once good protection compromised



Protection	PPE	Work	GEOS Use Examples	Type / Style	Reason	Fit	Care
Respiratory system	RPE, BA, respirators, particle masks	Work in unhealthy atmospheres and / or involving exposure to hazardous substances including dust	When required by OIM	Breathing Apparatus.	Provided by platform. Use according to instructions		
			Sanding, grinding or other equipment maintenance, that generates dust, in the Workshop	Particle Masks. Adco RP206X valved respirator	P2s dust mask	Individually packed. Snug fit around nose and mouth. Elastic head straps	Disposable
				Half mask and filters RP6100 / RP6055	Longer term use. More closely fitting	Snug fit around nose and mouth. Elastic head straps. Sized to fit	Replace filters when clogged. Wipe mask with damp cloth. Store in locker, clean and dry when not in use.
Body	Clothing (e.g. Coveralls, thermal,	Work involving risks of splashing or other contamination.	Work on platforms and vessels in extreme cold	Thermal coveralls. Pioneer arctic lined firemaster	Suitable for purpose. Orange coveralls required in Norwegian sector. High visibility stripes and logos provided	Individually sized	Launder as per instructions on label. Store in locker, clean and dry, when not in use.
			General work on platforms and vessels	Fire Proof coveralls. Pioneer unlined firemaster			
			Work on platforms and vessels in extreme heat	Light weight coveralls. S/s boilersuit	Suitable for purpose. High visibility stripes and logos provided		
			Work in workshop and warehouse	Dungarees. CLBB4	Suitable for purpose		
Work Suit. CJK18 and CTR10							
Person	Life jackets, fall arrest systems	Work where there is a risk of immersion / falling off	Work where there is a risk of falling into water	Life Preserver	Provided by platform. Use according to instructions		
			Work above 2m where barriers are insufficient	Fall Arrest Harness	Provided by platform. Use according to instructions		
Foot	Safety boots	Work where there is a risk of falling objects, slippery surfaces	Work on platforms and vessels in extreme cold	Thermal Safety Boots. C661843	Protect to -40°C. Good non-slip sole. Waterproof	Individually sized	Maintain in good condition, check regularly and replace if badly worn or deteriorated. Materials lodged in the tread should be removed. The stitching should be checked for loose, worn or cut seams. Spraying the upper layers of new footwear with a silicone spray or applying a protective wax will give extra protection against wet conditions. Store in locker when not in use.
			General work on platforms and vessels	Rigger Boots. PO807			
			Work on platforms and vessels where waterproof protection is required	Wellington Boots. V10120.	Easily removed. Slip resistant. Steel toecap to BS4676. Ankle protection. Waterproof		
			Work in workshop and warehouse	Lace up Boots. V1207	Slip resistant. Steel toecap to BS4676. Ankle protection.		
				Training Shoe. N0203	Slip resistant. Steel toecap to BS4676.		



1.2 Clothing

On all vessels chartered by Fugro GEOS a minimum of one lifejacket, hard hat, safety boots, survival suit and torch shall be available for each person. The need for additional personal lifesaving equipment shall be assessed on a project-by-project basis.

On other vessels, rigs or platforms care must be taken to ensure that appropriate lifesaving equipment is available and that its location is known. All personnel must check that their personal lifesaving equipment is present and in good condition as soon as possible after coming aboard.

Routine checks on personal lifesaving equipment by the Party Chief or safety representative and ship's crew will normally ensure its good condition but the onus is on each individual to check their own equipment carefully and to familiarise themselves with instructions for its safe and effective use. Report any problems with personal lifesaving equipment to the Party Chief immediately so that replacements can be obtained. Personal lifesaving equipment must not be used other than during emergencies or drills and must never be removed from the vessel for use elsewhere.

Fugro GEOS shall assess the need for, provide and control necessary PPE. All personnel shall observe specific requirements for the use of PPE and clothing displayed on safety signs at entrances to work areas. Any individual who recognises the need for additional PPE shall bring this to the attention of the Party Chief who shall take appropriate steps.

1.3 Life Jackets & Immersion Suits

Work vests or lifejackets shall be worn at all times by all personnel launching or recovering equipment. Be aware that the ship's Master may require lifejackets to be worn at all times when on the open back deck offshore, irrespective of the weather conditions or the work being undertaken.

In addition, a safety harness and line shall be worn when seas are breaking on deck or when the ship's Master or Party Chief consider that weather conditions or other factors demand it, such as having to lean out over the side of the vessel. Fall arrest equipment is covered in SP235.

Immersion suits may form part of the lifesaving equipment aboard the vessel. Unless a specific requirement to wear them has been identified within the Project Specific Risk Assessment (refer to Procedure SP228), immersion suits are not worn for normal shipboard operations. As stated above, personal lifesaving equipment must not be used other than during emergencies or drills and must never be removed from the vessel for use elsewhere.

1.4 PPE Requirements

When working on the vessel, all technical and maritime personnel shall wear clothing appropriate to the weather conditions and their work location on the vessel. In addition, use the PPE assessment as a guideline. When working on the back deck, the following PPE shall be worn:

Lifejackets and Safety Harnesses. As stated above.

Hard Hats. Hard hats shall be worn on the back deck at all times. Hard hats should be worn on other open deck areas when lifting operations or work aloft is taking place and while within the 500m safety zone of offshore installations.

Safety Footwear. Safety boots/shoes with suitable toe protection shall be worn at all times when working on deck. Flip-flops, sandals or slippers must not be worn outside the accommodation.

Overalls. Overalls shall be worn on deck when launching, recovering or working on equipment.

Protective Gloves. Protective gloves shall be worn at all times when undertaking back deck operations and particularly when handling cables, wires, ropes, heavy equipment, boxes, etc. The requirement can be relaxed when gloves are a hindrance or present a danger in themselves.

Safety Glasses/Eye Protection. It is the Party Chief and/or ship's officer's responsibility to decide whether safety glasses are required for a particular operation on the vessel.

Foul Weather Gear. Foul weather gear shall be worn when weather conditions demand.

Ear Protection. Ear defenders or other protection shall be worn when working in or passing through areas designated as ear protection zones.

Because the effectiveness of PPE can be easily compromised it should always be considered as the last resort and used only where other precautions cannot adequately reduce the risk of injury.

Engineering controls and safe systems of work should always be considered first because PPE only protects the person wearing it, whereas controlling the risk at source can protect everyone. The maximum level of protection is seldom achieved with PPE and the actual level of protection is difficult to assess. Finally PPE may restrict the wearer by limiting mobility or visibility causing a further risk.

1.5 PPE Equipment Control & Maintenance

Fugro GEOS shall take all reasonable steps to ensure that any PPE provided is used properly. Every employee shall use PPE in accordance with manufacturer's instructions and training received.

All PPE must be well maintained and be properly stored when not in use. It should be kept clean and in good repair, the manufacturer's maintenance schedule (including recommended replacement periods and shelf life) should be adhered to. The trained wearer can carry out simple maintenance, but only specialist personnel should carry out more intricate repairs. Hard hats should be replaced at a maximum interval of two years. Lifejackets should be replaced at a maximum interval of three years. Overalls, protective gloves, safety glasses, safety footwear and foul weather gear should be replaced as required.

Every employee who has been issued with PPE shall immediately report any loss of or obvious defect in the PPE to the Party Chief or Project Manager who shall take steps to have the PPE repaired or replaced.

SP231: MOORING EQUIPMENT DEPLOYMENT & RETRIEVAL

1.1 Introduction

Most Fugro GEOS field operations involve the deployment of oceanographic moorings. All deployment and recovery procedures must be agreed with the vessel's Master as he has ultimate responsibility for safe practices aboard. All personnel, including ship's crew, involved in the deployment of moorings are to be fully briefed on the methods to be used, including the potential dangers to personnel and equipment, pollution of the environment and risks to vessel.

Procedure SP229, General Marine HSE Procedures covers general HSE concerns when operating on the back deck of a vessel. The following applies for all mooring deployment and recovery operations:

- The Party Chief shall take charge of the operation and shall ensure that the officer of the watch is aware of the intentions and that vessel speed and heading are suitable for the launch or recovery. If appropriate, the vessel's chief engineer should operate the vessel's winches, cranes, etc.
- All personnel shall wear PPE appropriate for the work and prevailing conditions (Procedure SP230). As a minimum on the back deck, this should comprise hard hat, gloves, safety boots, overalls and lifejacket.
- If it is necessary for guard rails, chains or similar to be removed for deployment, they should be replaced with a temporary rig (rope or similar) and returned as soon as possible. Do not leave such rigs unattended.
- All winches and reels must be clear of personnel and obstructions before any movement takes place.
- Two-way communications between the back deck and the bridge shall be maintained during deployment. The officer of the watch shall be informed when deployment starts and is completed.
- All personnel involved with deployment or recovery of a mooring should be briefed by the Party Chief. Personnel should be in no doubt of what is required of them in their specific duties.
- Only one person should instruct the winch/crane operator. Hand signals should be agreed beforehand and used with voice commands during operations, particularly where there are language difficulties.
- If manpower allows, one person should stand back and keep an overview of the operation.
- All personnel should keep aware of events around them. Anyone has the right to stop operations should they feel the situation is unsafe.

1.2 Weather/Sea State (Go/No Go)

The prevailing weather conditions and the sea state must be considered carefully before starting any deployment or recovery operation together with any likely changes in conditions during the time that it will take to complete the operation. Given the changeable nature of the conditions, it is suggested that the vessel be held in the deployment location aligned in the planned orientation for around thirty minutes in order to assess the effect of the weather on back deck safety.

The Party Chief, in agreement with the vessel's Master and the Client's representative, is responsible for making the decision about starting operations. However, the Master is ultimately responsible for the safety of the vessel, all personnel and all equipment aboard and can overrule the Party Chief's decision and the Party Chief must abide by any such decision.

1.3 Deployment

1.3.1 Wires and Shackles

When deploying moorings, cables, wires, ropes and chains can be under a significant tension and failure can cause whip-back and serious injury. Personnel must ensure they recognise these dangers, where they might arise and from what direction they might come to prevent any injuries or equipment damage. In the following points, cables, wires, ropes and chains are collectively referred to as 'wires':

- Never straddle wires whether under strain or not. They can quickly and unexpectedly come under strain resulting in heavy bruising, crush injuries or amputation.
- Never stand within coils or bights (loops). Again, wires may come under strain unexpectedly.
- Never stand in the line of recoil of wires under tension. Should a wire part, it will whiplash back towards its anchor point (ballast weight, winch drum, block, etc). Generally, ropes will recoil along the line of tension in a spring-like fashion and cables will recoil along the line of tension in a snakelike fashion, thereby having greater potential for damage or injury over a wider area.
- Always wear PPE when handling wires. A minimum of hard hat, protective gloves, overalls and safety boots.
- When joining wires, use the mooring configuration checklist. Each join must be checked for integrity.
- When paying wires on to a drum, ensure there are no 'riding turns' (i.e. one turn becoming tucked under another). This may cause the wire to jam on the winch when it is subsequently paid out.
- Keep tension on the wire to prevent chinking and other damage.
- When joining wires with shackles, ensure shackles are in date, tested and within the lifting capacity required for the mooring. Shackle screws should be tightened fully without cross-threading and secured using mousing wire or cable ties. Ensure shackles are not twisted and lie correctly in line when deployed.
- If joining wires with pin shackles, ensure split pins are properly located and bent sufficiently so that the pin cannot work free.
- Never let wires become snagged, kinked or twisted.
- If not involved in the operation, stay behind a solid object or preferably move off the deck. Keep inboard of all rails and do not sit or place hands on gunwales or rails where hands can be crushed or trapped.

1.3.2 Pad Eye and Load Attachment Points

Careful consideration must be given to location and suitability of all load attachment points. All such points must be fit for purpose, as defined by carrying out a hazard identification and risk assessment at each point. Pad eyes should be load tested prior to use to a suitable and sufficient working load limit.

1.3.3 Deploying Instruments

Instrument integrity must always be a prime concern when deploying moorings. Damaged equipment may not operate correctly and may be costly in data loss, equipment replacement or damage to reputation. Many vessel crews will be more concerned with deploying or recovering the mooring quickly and may not appreciate the consequences of equipment damaged. Therefore, the Party Chief must brief them fully, stressing the need to protect instruments as well as the HSE concerns.

1.3.4 Technical Instructions

Each instrument has its own Technical Instruction (TI), and scientific personnel should be familiar with these prior to deployment. They detail the technical requirements for preparing, configuring, deploying and recovering instruments and moorings. Those relating to this specific project are listed in Appendix C. The following should be noted when preparing instruments:

- When setting up instruments, follow the relevant TI. Particular attention should be paid to battery terminals, voltages and other power requirements, so not to damage the equipment or cause injury.
- When disassembling an instrument during set up (e.g. ADCPs), undertake this under shelter if possible. Water ingress by seawater or rain may damage instrument electronics. Ensure nuts, screws, caps, etc are not over-tightened when reassembling, using a torque wrench where possible, referring to the manufacturer's manual as appropriate.
- When working on instruments on the back deck, ensure they cannot roll. Instruments should be lashed down and kept in their transit cases whenever possible.
- Instruments should be properly secured in-line as stated above.
- Lighter instruments (RCMs, WLRs) should not be allowed to bounce along the deck when the mooring is deployed. Beware of instruments catching on ships fittings such as bollards, vents, deck plates, etc.
- Heavy instruments (ADCPs, Waveriders) should be moved using the crane/A-frame and slip hook where possible.
- If instruments are not secured in-line (i.e. strapped to another instrument) ensure they are properly padded and secured with jubilee clips or straps and not under undue strain.
- No Fugro GEOS oceanographic instruments have acoustic transmissions that are harmful to personnel or the environment.

1.3.5 Ballast Weights & Reserve Buoyancy

Depending on the mooring configuration, ballast may vary from 50kg to over 2 tonnes. Similarly, the quantity and weight of reserve buoyancy will vary depending on the project requirements. When moving ballast or reserve buoyancy, observe the Lifting and Hoisting and Manual Handling Procedures (SP229).

1.4 Retrieval

The general procedures should be followed as outlined in preceding paragraphs of this procedure. Wires that deployed in a marine environment will corrode. Therefore care should be taken when recovering instrument strings. Wires may be brittle, chaffed, cut or otherwise weakened, and may be parted if subject to excessive tension or strain.

SP232: DIVING OPERATIONS

1.1 Responsibilities

This procedure establishes how diving operations should be safely monitored during Fugro GEOS operations and who shall be responsible for the process. It shall apply to all field work projects which require the use of diving services.

The Project Manager must be satisfied that the diving contractor is registered with the Health and Safety Executive (for UK operations) and that operations comply with HSE requirements. The Dive Supervisor shall be responsible for divers in the water.

1.2 Definitions

Diver/Diving Team. The person or team undertaking diving operations, usually as a contractor to Fugro GEOS, but may be a qualified employee.

Diving Supervisor. The person in charge of the diving team, who must be qualified to at least HSE Part IV and hold a valid First Aid Certificate.

1.3 General Requirements

The procedure applies to diving operations, carried out on behalf of the Company for the purposes of scientific research or on behalf of organisations requiring scientific observations. Fugro GEOS does not usually undertake diving operations. However a sub-contract company may be used.

All diving operations carried out in waters to which HSE Regulations apply must comply with the Diving Operations at Work Regulations 1981, and Amendments of 1990 and 1992, and the Diving at Work Regulations 1997.

If the Party Chief is unhappy with the safety precautions taken by the diving team operations must be stopped immediately and the risk must be re-assessed in consultation with the diving supervisor. Neither the Party Chief nor Client should endanger the diving team by insisting on continued diving operations in hazardous conditions, such as:

- Deteriorating weather.
- Water depths greater than those for which the divers are equipped and qualified.
- Around unstable structures or seabed.
- In the vicinity of vessel traffic or fishing.

The diving supervisor shall have the final decision whether or not a situation is safe.

Further information in relation to the above procedures can be found in the HSE Diving Operations at Work Regulations and the Guidance Notes.

1.4 Operational Requirements

The HSE Regulations require that persons undertaking diving operations fulfil the following:

- Have a valid certificate of training to at least Part IV as required by Schedule 4 of the Regulations.
- Have a valid certificate of first aid as required by Regulation 10A.
- Have a valid certificate of medical fitness to dive, issued under Regulation 11.
- Are competent to carry out the work safely.

1.5 Plant & Equipment

Plant and equipment is the diving contractor's responsibility but should comply with the requirements of Regulations 12 and 13 where practical.

1.6 Rules of Operation

The diving contractor should prepare diving rules in accordance with Schedule 1 of the Regulations under the following headings:

- Planning.
- Preparations.
- Procedures.
- Emergency Procedures.

1.7 Notice of Operations

Where required by law, the diving contractor will advise the Health and Safety Executive of any diving operations at least 21 days in advance or, if this is not possible, as soon as practical. Advise the local coastguard or harbour authority prior to operations starting.

1.8 Additional Preparations

Immediately prior to divers mobilising to site, check the following site hazards:

- Underwater pollution sources.
- Tidal streams.
- Vessel movements.
- Weather forecast.
- Tide times and heights (and slack water).

1.9 SCUBA Divers

In some instances, Company personnel may undertake SCUBA diving on Company operations. In such case, they shall adhere to the above procedures.

SP233: SMALL BOAT OPERATIONS

1.1 Responsibilities

This procedure shall apply to all field projects that require the use of small boats for survey or diving operations. It is required to ensure safe operations and it is the responsibility of the Party Chief to ensure that this procedure is followed.

1.2 General Requirements

Operations involving small boats induce their own hazards as a result of cramped conditions, instability, vulnerability to the elements, and reliance on a small team. Often, boat crews will be unfamiliar with the requirements of Fugro GEOS' operations and in some cases may not speak English. It is therefore imperative that stringent procedures are observed and communicated.

1.3 Boat Integrity

Prior to taking the boat away from shore, harbour or the mother vessel, the Party Chief should satisfy himself that the hull and mechanics are in good repair. As a minimum, the following should be checked:

- Integrity of hull: check for weaknesses, holes and splits, and corroded or decayed material.
- Serviceability of steering gear: check for looseness or excessive play in rudder, inboard motor shaft, propeller, etc.
- Serviceability of engine: run up and test inboard or outboard motors. Check cooling water is discharging properly (and therefore cooling system is not blocked).
- Check glands and seals are not leaking: on prop shaft, stern seals, pump seals, intake seals, etc.
- Check tubes are correctly inflated on rubber boats, and that there are no air leaks;
- Check bilges are relatively clear of oil and water.
- Do not allow the boat's mooring lines to trail in the water as they may wrap around the propeller shaft.

1.4 Navigation

- Check navigation lights are present and working. This is particularly important in areas prone to mists or where there is a chance of being delayed beyond sunset. Provide an adequate high-powered lamp if necessary.
- Ensure the boat crew is fully conversant with the area of operations, particularly shoals, areas of rip tide, navigation channels and restricted areas. Preferably, provide a chart of the area, including the transit route.
- Carry a portable GPS receiver.
- Do not cross shipping channels unless certain it is safe to do so. Never obstruct larger vessels.

1.5 Communications & Logistics

- Ensure there is sufficient fuel for the return journey, plus contingency.
- Ensure there is sufficient drinking water for the whole party.
- Ensure there is sufficient protection from the elements: foul weather clothing or sunshade as appropriate.

- Make authorities (harbour master, coastguard, mother ship, shore office, etc) aware of your plan, including return ETA.
- Establish communications with authorities (as above) once on the boat.
- Ensure relevant authorities have emergency procedures in place. If in doubt, issue the Company's ERP, including emergency contacts.

1.6 Safety & Security

Ensure personnel are aware of the following procedures:

- Man Over Board.
- Diving Operations (where appropriate).

Check the boat has the following safety equipment as a minimum:

- Appropriate PPE, including life vests.
- First Aid kit.
- Basic engine spares (spark plug for petrol outboard motors).
- Basic repair equipment (rubber bungs).
- Bailer.
- Pump (for inflatable boats).
- Flares.
- Fire extinguisher.

If leaving the boat unattended in populated areas, ensure the boat and equipment are not at risk from theft or damage:

- Do not leave equipment unattended. Either post a guard or remove equipment to a secure location.
- Do not leave the boat in a location where it will obstruct the passage of other traffic.
- Do not tie the boat to jetty walls or bollards without allowing for change in tide levels.
- If anchoring, ensure the anchor is adequately caught on the seabed, so that the boat cannot drift unnoticed.

1.7 Loads & Personnel

When carrying stores, equipment or personnel, adhere to the following:

- Distribute loads evenly.
- Tie down stores securely: remember weather and sea states can change with very little warning.
- Attach safety lines (hook ropes) when transferring equipment into/out of the boat.
- Do not throw or drop loads into the boat.
- Observe Manual Handling and Hoisting and Lifting procedures.
- Keep portable fuel tanks as far away from personnel as possible. Do not decant fuel in the boat unless absolutely necessary.
- Protect the boat from sharp loads (such as stakes, tripods, etc).

- Ensure personnel are aware of hot exhausts or other hot hazards.
- Do not allow people to drape themselves over the side of the boat or trail limbs in the water.
- Do not exceed the safe carrying capacity of the boat: boats have different carrying capacities for different sea conditions.
- Personnel should always wear life vests and appropriate PPE, including ear protection.
- Do not allow personnel to stand in the boat unless absolutely necessary.
- Do not allow personnel to smoke at any time.

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SP234: TRAVEL OVERSEAS

1.1 Responsibilities

This procedure is to establish the preparations and precautions to be undertaken prior to personnel travelling overseas. It shall apply to all field work projects which require personnel to travel to locations overseas where foreseeable hazards exist (medical, civil, etc). It shall be the responsibility of Project Managers to ensure that this procedure is implemented for operations under their control. On site responsibility shall be delegated to the Party Chief. A significant amount of responsibility is also borne by the individual employee.

This procedure shall be overruled by the requirements of a Project Specific Emergency Response Plan where travel and security precautions have been considered as part of the ERP.

Where necessary, consideration of elimination of the hazard may be required. The Primary Safe Travel Assessment Form shall be used for this purpose and findings discussed with relevant parties.

1.2 Definitions

- Vessel:** Vessel may refer to ships, platforms or offshore installations.
- Location:** May refer to overseas location where Company employees may reasonably be expected to operate. It may include locations where significant hazards are present.
- Inoculation:** This is taken to include all forms of medication or vaccination required to combat specific diseases, illnesses or infection, including Yellow Fever, malaria, polio, tetanus, etc.

1.3 Requirements

Personnel assigned to operations at overseas locations, whether on sea going vessels or onshore, may be exposed to local natural or manmade hazards. Such hazards may include the following:

- Disease, infection or other illnesses.
- Criminal violence or military/paramilitary action.
- Civil unrest.
- Adverse meteorological or other environmental conditions.

All Company operations in overseas locations shall be carried out in accordance with the procedures laid down by the HSE Management System, and supported by sound information from external sources, such as embassies, the press, travel advisory services, client information, etc. Safety guidelines, rules and considerations must take precedence over any operational requirements or instructions that are contrary to accepted safe working practices.

1.4 Medical

All employees should remain in date for a medical, as outlined in SP224.

1.5 Driving on Company Business

Always obey the rules of the road and any local, national or international regulations. Some items that should be borne in mind include but are not limited to:

- Do not consume alcohol if you are going to drive on company business
- Ensure that you have sufficient time to complete your journey safely
- Ensure you are fit to drive
- Check your vehicle before use
- Ensure that the vehicle is suitably insured / certificated as appropriate
- Be aware of using correct manual handling techniques
- Do not use a mobile telephone whilst operating a vehicle on company business
- Give yourself a space cushion whilst driving

1.6 Inoculations

Personnel expected to travel to overseas locations are responsible for ensuring they are in date for the inoculations required or recommended for that location. The Company will assist in getting the information necessary to identify which inoculations are necessary, and reimburse reasonable expenses related to inoculation. The following are considered the minimum requirement:

- Yellow Fever (compulsory in some countries).
- Tetanus.
- Polio.
- Hepatitis A.
- Typhoid.

Employees should also consider medication/protection against the following, where such a risk is expected:

- Hepatitis B.
- Malaria.

In addition to the above, certain countries may require evidence of the following:

- HIV test.
- Cholera.

Health requirement updates can be sought from a travel advisory service, such as MASTA (Medical Advisory Service for Travellers Abroad) in the UK. Medical advice should be sought from a competent person (such as a Medical Practitioner).

1.7 Basic Precautions against Illness

The following guidelines should be followed, adapting as necessary for hot or cold climates:

- Take the prophylactics recommended by your Medical Practitioner for the duration
- Drink only certified bottled water, or use water-purifying tablets. Avoid ice
- Peel or wash raw fruit or vegetables before eating (using bottled water).
- Avoid seafood, meat or meat products that may not have been prepared or cooked sufficiently well
- Carry and use spray-on insecticide (deterrent against mosquitoes/tsetse fly).
- Keep air conditioning on and windows closed if possible (deterrent against mosquitoes/tsetse fly).

- Do not have unprotected sex (Aids, Hepatitis B, other venereal diseases).
- If medical treatment is required, ensure needles and dressings, etc are sterile. The Company has a stock of sterile medical packs, and these may be signed out prior to travelling.
- Ensure that milk and dairy products are pasteurised (precaution against some bacterial diseases).
- Wear bright colours, long sleeves and long trousers (deters tsetse fly).
- Wear sunscreen and a hat, or cold weather clothing as appropriate.
- Eat in reputable establishments
- If in doubt about what you are going to consume, don't consume it.

1.8 Precautions for Personal Security

Areas of concern in many countries, particularly in those of the developing world where ex-patriots can be seen as easy targets, are as follows:

- Armed Robbery/Banditry.
- Break-in to hotel rooms.
- Civil unrest/civil war.

For personal security the following precautions should be followed as a minimum:

- Lock hotel rooms, even when occupied.
- Do not display valuables (jewellery, camera; passport, credit cards, cash) or leave valuable equipment/belongings unattended.
- Do not travel alone. If travelling alone, seek assistance from the local agent/client.
- Do not allow authorities to take your passport from you. Insist on accompanying them if they take your passport to their office/superior.
- Do not provoke authorities (police, army, customs, immigration, etc) – be co-operative, good-humoured, calm and patient.
- Check taxis before hiring. Hotels and airports often have licensed taxis – expensive but generally safer. Check the driver's ID.
- Check the identification of persons claiming to be in authority; some countries are renowned for fraud by bogus officials.
- Check for any civil unrest at the destination before travelling. Seek advice from experienced travellers if in doubt. Be neither overconfident nor intimidated.
- Register with the local embassy/consulate on arrival; this may be done by phone, fax or in person.
- Advise the local agent or client contact, if appropriate, and Fugro GEOS of your arrival.

1.9 Precautions against Fraud

Many countries are renowned for fraud, either by officials (customs, immigration, police), the public (opportunists, con men) or even by potential Clients (favours in return for contracts). Exercise common sense at all times, but the following precautions should be taken as a minimum:

- All points as above.
- Never offer or accept bribes. While this may seem an easy option at the time, it may escalate and ultimately cause more problems.
- Do not be over generous with tips. It can draw attention.

- Do not be intimidated by an 'official' becoming aggressive. Check ID, be courteous and co-operative, but firm. With Immigration officials do not give in to a bogus claim of an 'inaccuracy' with your visa/passport. This is highly unlikely to be true.
- Do not use a credit card unless absolutely necessary. If used, ensure that card is swiped in front of you and that only one copy of the card counterfoil is made. Ensure the total charge is filled in before signing so that amendments cannot be made after signature.
- Be aware of over friendly people on the street, or people bumping into you, or distractions. They may be pickpockets.
- Do not agree to take part in 'get rich quick' schemes, investments or loan agreements. This could include approaches from employees of the local agent, sister companies or even the client.

1.10 Company Obligations

The Company has a responsibility for the health and safety welfare of all its employees. If the Project Manager or any member of a project team has concerns over any HSE issue, including travelling to and/or working in a remote or potentially politically unstable area, they must raise them with their line Director and the HSE Manager.

The most effective tool against overseas hazards is common sense. However, Fugro GEOS has certain obligations to its staff, as outlined below:

- **Support:** the Company shall offer all reasonable support, including medical/travellers health updates, foreign office bulletins, embassy/consular contacts, local agent contacts, and client contacts.
- **Visas and travel expenses:** the Company shall procure the necessary visas, flights and other travel arrangements, wherever possible.
- **Inoculations and medicals:** the Company shall meet the costs of inoculations and medicals. Each employee is recommended to ensure relevant inoculations are taken and that medicals remain in date.
- **Emergency Response Plan:** the Company shall devise a project specific ERP, including all relevant contacts (Fugro GEOS management, client, agent, clinics, evacuation).
- **Civil Unrest:** where there is concern over civil unrest or military/paramilitary action, the Company shall assess the hazards of each proposed visit based on the latest information available from travel agencies, the UK Foreign Office, Client and agent representatives in country. No undue risk shall be taken (Primary Safe Travel Assessment).

SP235: INSTALLATION & MAINTENANCE OF INSTRUMENTS AT HEIGHT

1.1 Introduction

Most Fugro GEOS Seasystems operations involve the installation, or maintenance of meteorological sensors. The majority of wind sensors are installed at height, usually at the derrick crown on offshore structures. All installation and maintenance procedures must be agreed with the platforms site personnel, usually conducted in the form of a toolbox talk and the generation of a permit. Ideally the work scope should be supplied to the site crew at least one week in advance.

Procedure SP228 covers the general Hazard Identification, Risk Assessment & Control methodologies when preparing for an offsite visit. This procedure may be used as an aid to risk assessment and control in the specific circumstances of working at height.

This document is structured to provide general information relating to working at height, weather conditions in relation to working at height, and lists of the key items to consider before ascending/descending and before carrying out work at height.

1.2 Overview

Working at height means working on or from:

- Ladders
- Scaffolds / Mobile Elevating Work Platforms
- Static Work Platforms
- Roofs and other structures

UK Law requires that suitable and sufficient steps be taken to prevent personnel from falling where the fall risk is greater than 2 metres. All personnel required to work at height will have undertaken at the minimum a basic awareness-training course in working at height. Further training will be provided as necessary.

1.3 General information

The following general information applies to working at height on onshore and offshore installations:

- Working at height must only take place during daylight hours.
- The prevailing and forecasted weather conditions must be taken into account before deciding whether it is safe to work at height.
- Before starting work, consideration should be given to the realistic time required to fully undertake the work scope in reference to the weather forecast and sunset time (i.e. once the work has been started, can it be stopped before the weather changes/daylight diminishes).
- Risk assessments shall be carried out before the work commences.
- All members of the party are responsible for their own safety and the safety of others.
- All personnel should ensure that they know what to do in case of emergency.

- All personnel shall wear appropriate PPE for the work and prevailing conditions. As a minimum this should comprise of a green coloured hard hat, gloves, safety boots, fire retardant overalls, eye protection i.e. safety glasses (see PPE Risk Assessment). When working at height fall arrest equipment shall be worn. It is strongly recommended that when working at height warm clothing be worn.
- Any equipment that exceeds 10kg, or may prove difficult to carry up to the work area, should be lifted into location by some mechanical means, ideally by crane.
- The User shall check all equipment prior to use.
- All equipment taken up to the elevated work site should be recorded in a checklist. Upon descent from the site, the checklist should be used to ensure all equipment is accounted for.
- Two-way communications between the platform Radio Operator and deck crew should be maintained throughout the operation.
- As a minimum two engineers should be used to lower and service any anemometer at height.
- All personnel shall report any defects in equipment or systems.

1.4 Weather (Go / No Go)

Before any ascent / descent is undertaken, the prevailing and forecasted weather conditions must be assessed with reference to the presence, or likelihood of onset of, adverse weather (i.e. environmental conditions that may affect people or equipment to such an extent that precautionary measures must be taken to maintain a safe system of work). Adverse weather conditions include snow, ice, hail, lightning, heavy rain, high winds, low cloud base, poor visibility, severe sea state and strong currents. This information may be taken from the platform's Met Station and/or from hand held equipment, both in advance of the ascent/descent and whilst working at height. Weather forecasts, when available, must be reviewed to assess any potential for changes in the weather during the time that it will take to complete the whole operation. Throughout the operation, personnel should keep a constant eye on the prevailing weather conditions.

The team leader, in agreement with the platform, is responsible for making the decision about starting operations. Weather conditions can quickly change and the effects of short-term variations, such as wind gusts, should be considered. A guide to the limits at which safety and the ability to undertake the work to be carried out could be compromised is provided in the table below. It should be noted that specific offshore platforms might also have environmental limits in place, which may differ from those listed below and which should also be taken into consideration.

Environmental Conditions at Height	Action
Wind Speed <20kts Wind Gust <25kts	The work may be carried out safely, however other environmental and operational considerations should be taken into account. It is up to the site team to decide if the work should be carried out.
Wind Speed 20-25kts Wind Gust 25-30kts	Only sensor inspections (e.g. physical inspections and cross comparisons) may be carried out. Other environmental and operational considerations should still be taken into account and may prevent any work from taking place. It is up to the site team to decide if the work should be carried out.
Wind Speed >25kts Wind Gust >30kts	The ascent must not start. All work at height must be suspended. If it is safe to do so, personnel must descend from the work site at height.

Note: These are wind speeds at 10m above msl.

(continued)

Environmental Condition at Height	Action
Air Temperature <5°C	Wind chill should be taken into account. If protective clothing is worn and conditions still cause the loss of feeling in hands and/or feet in <30mins the work should be stopped.
Precipitation	Electrical junction boxes should not be opened during periods of precipitation, nor should any electrical re-wiring be attempted. Ladders can become very slippery when wet. Caution should be used.
Snow and Ice Accumulation	Clear snow and ice and minimise working at height.
Visibility <1000m	It is doubtful that offshore procedures will allow work to be undertaken at height during periods of poor visibility. Work should not be attempted if from the platform deck the anemometer and/or working area cannot be seen.
Wind Chill Conditions	Minimise individual's exposure.
Electrical Storms	Suspend working at height and external operations and retire inside.

1.4.1 Wind

Mean wind speed is the average speed calculated from a 10-minute sample. Gust wind speed is the highest gust speed over a 3-second period within a 10-minute mean. The table below shows how wind speed varies with height:

Level	Mean Wind Speed (kts)						
	20	30	40	50	60	70	80
100m	20	30	40	50	60	70	80
80m	19	29	39	49	58	68	78
50m	18	28	37	46	55	64	74
30m	17	26	34	43	52	60	69
20m	16	25	33	41	49	57	66
10m	15	22	30	37	45	53	60

1.4.2 Temperature

The following table shows how increasing wind speed has a chilling effect on temperature:

Wind Speed (Knots)	Temperature °C				
	+10	+5	-1	-7	-12
0	+10	+5	-1	-7	-12
4	+9	+3	-3	-9	-15
9	+5	-2	-9	-16	-23
14	+2	-6	-13	-21	-28
18	0	-8	-16	-23	-32
22	-2	-11	-19	-28	-36
27	-2	-11	-19	-28	-36
31	-3	-12	-20	-29	-37
36	-3	-12	-21	-30	-38

1.5 Ascending and Descending the Derrick

The following is a list of the key check items to be considered before ascending/descending:

- The designated team leader shall take charge of the operation and shall ensure that site personnel are aware of the work scope.
- Ensure that the area below the elevated work site is sealed off and an announcement made to platform crew of the work to be carried out.
- Always wear appropriate PPE.
- If available, obtain a climber's hard-hat from platform personnel.
- All tools should be secured in closed overall pockets and/or in a backpack.
- Always secure loose items to your person, ensuring that pockets and bags are securely closed.
- Use two-way radio and hand signals as a back up.
- Never climb a ladder until clear of other personnel.
- Always have two hands free.
- If materials have to be winched up the ladder care should be taken not to position yourself below the gear being winched. The weight of the materials being winched should not exceed 10kg.
- Always inform the deck crew of the safe arrival of yourselves at the worksite and at the start of the descent.

1.6 Working at Height

The following is a list of the key check items to be considered in reference to carrying out the work at height before ascending/descending:

- Know your level of acrophobia. If the height overwhelms you, do not continue.
- Always use suitably checked, maintained, tested and certified fall arrest equipment when working at height. Do not entrust your personal safety to unsuitable or inadequate equipment. Ensure that the harness is secured to a fixed point when at the work site location.
- Always attach lanyards to all tools and equipment when working at height, and tie lanyards to a fixed point.
- Never over stretch. If the instrument is out of safe reach then specialist personnel will be required to work over the side of the enclosed working area.
- Always ensure all materials are removed from the work site when work has been completed.

1.7 Technical Instructions

Each instrument has its own Technical Instruction (TI), and scientific personnel should be familiar with the content of these prior to the service visit. They detail the technical requirements for preparing, configuring, and servicing the specific instrument.

The following should be noted when preparing instruments:

- When setting up instruments, follow the relevant TI. Particular attention should be paid to battery terminals, voltages and other power requirements so as not to damage the equipment or cause injury.
- When disassembling an instrument during set up, undertake this under shelter if possible. Water ingress by seawater or rain will damage instrument electronics. Ensure nuts, screws, caps, etc are not over-tightened when reassembling, using a torque wrench where possible, referring to the manufacturer's manual as appropriate.

1.8 Final Note

Personnel should be aware that they can opt to stop an operation **at any time** he/she feels unsafe without fear of redress from Fugro GEOS or the Client as Fugro GEOS puts safety as a higher priority than risking an accident.

SP236: MALARIA CONTROL

1.1 Introduction

Malaria represents a significant health risk in many areas of the World, including parts of Africa, Asia and Latin America. Approximately 300 to 500 million of the World's people are infected by the disease and between 1.5 to 2.7 million people die from it every year. The problem of controlling malaria may be exacerbated by inadequate health structures and poor socio-economic conditions and by the increase in resistance to certain drugs used to combat the disease. It is important, therefore, that Employers and Employees alike do their utmost to prevent infection.

Control of malaria infection is achieved through acting in accordance with the HSE Management System and this Safety Procedure in particular, which focuses on the systematic use of personal protection measures, appropriate environmental controls in living and work areas and the ready access to proper medical care.

1.2 Purpose

The purpose of this Safety Procedure is to define the actions to be taken when a project will be carried out in malaria affected areas in order to reduce malaria risk. This Safety Procedure is written for non-immune staff.

Semi-immune staff must also be aware of malaria symptoms and the Base Manager and/or Project Manager must be informed of a real malaria case, which must be treated accordingly.

Some items in this work practice are only on request of specific clients, but this will be indicated if necessary.

1.3 Definitions

Non-immune staff	All persons who are not native to a particular malaria area
Semi-immune staff	Persons who have been repeatedly exposed over their lifetime to the malaria parasite

1.4 Responsibilities

The Department Manager will preside over the yearly toolbox meeting regarding malaria.

The QA and HSE Manager is responsible for the annual review of the malaria control program, the induction training for new staff and the contents of the toolbox meeting regarding malaria.

The Operations Co-ordinator is responsible for informing the project staff regarding possible malaria risks and what action to take. That person is also responsible for the registration of contacts by staff to the travel clinic, informing Base Manager regarding first-time visitors and for the filing of relevant information.

Personnel nominated for the project are responsible for contacting the travel clinic, for ensuring they have the latest information on malaria and for using adequate and sufficient medication and insect repellent. They are also responsible for reporting the purpose of visits to a travel clinic to the Operations Co-ordinator and for the immediate reporting of any suspect fever.

The Base Manager is responsible for the malaria control of the base and responsible for monitoring the local situation, which might have impact on operations and brief first-time visitors.

1.5 Procedures

1.5.1 General

During the Induction Training of Staff, the QA and HSE Manager will inform staff of the existence and the location of the QA and HSE Manuals and of the latter containing the Safety Procedures.

The Operations Manager will inform relevant staff about the malaria control program and advise them to obtain and use the relevant chemoprophylaxis and other preventive measures.

At least once a year a toolbox meeting must be organised, in which the latest developments regarding malaria will be dealt with. The QA/HSE manager will supply the department managers with sufficient information.

1.5.2 Project Preparation

The Project Manager should be aware of the malaria risks on location.

In case of malaria risks personnel nominated for the project will be briefed in time by the Operations Co-ordinator about the risks and are reminded to contact a travel clinic. After a visit to the travel clinic, staff must report the matter to the Operations Co-ordinator who will record this on the personnel records.

After a visit to the travel clinic relevant staff should be aware of the malaria risks in the area, precautions, most effective medication for location, symptoms of malaria and how to act in case of malaria. Staff should have requested latest documentation on malaria.

Relevant staff are responsible for carrying sufficient medication (chemoprophylaxis) and insect repellent.

Relevant staff should start medication according to instructions and to use appropriate biting protection as this is the first line in defence against any disease carried and transmitted by biting insects.

The project manager will include in the project field binder, information regarding malaria post-exposure for personnel leaving for the malaria area.

For ExxonMobil related projects only:

As part of travel arrangements for ExxonMobil related projects the Operations Co-ordinator must inform the Base Manager when personnel are visiting the malaria area for the first time.

The nominated personnel must complete and sign the ExxonMobil Malaria Control Protocol Attestation (attached to this Safety Procedure) – handed out by the Operations Co-ordinator as part of the travel arrangements. If the form has been completed previously, there is no need to fill it in again, unless they are requested to do so by Management. The Attestation will be filed by the Operations Co-ordinator.

1.5.3 Arrival in Malaria Area

Personnel should know where to seek local medical advice in case of malaria symptoms. The Base Manager and the Operations Co-ordinator are able to supply this information, which forms part of the Emergency Response Plan.

Where personnel are responsible for own laundry, they should treat outer clothing with insect repellent according to instructions. Impregnation of clothing is an important element in reducing the potential for contracting malaria. A number of different insecticides may be found in commercially available preparations. Read the directions for use carefully before using a product.

Personnel should avoid unnecessary exposure to mosquitoes, especially during dawn to dusk hours.

Personnel should avoid stagnant water, as these areas are potential breeding grounds for these insects and avoid shady conditions outside in the late afternoon.

Personnel should wear long sleeve shirts and trousers with ankle protection when working and also at other times, especially from dusk to dawn.

Personnel must use mosquito repellent when needed. The insect repellent DEET at a concentration of 30% is the best available product. Higher concentrations are not more effective. Apply the insect repellent at the exposed skin (except around eyes, lips and broken skin), especially around ankles and under the socks. Be aware of side effects, although they are rare. Read the directions for use carefully and handle accordingly.

Personnel should be aware to sleep in a mosquito free area or under a mosquito net, which could be sprayed with insecticide (permethrine).

Keep the air-conditioning, or if this is not available, the overhead fan running as mosquitoes do not like cool areas or moving air. Use smoke coils, heated impregnated mats or insecticide spray.

For ExxonMobil related projects only:

First-time visitors to an ExxonMobil related project arriving in a malaria area must be instructed again by the Base Manager regarding malaria protocol requirements prior to work. A malaria questionnaire (attached to this Safety Procedure) for first-time visitors must be completed. The completed forms need to be sent by the Base Manager to the Operations Co-ordinator for filing.

1.5.4 Local base

Effective control must be carried out around and in the base. The Base Manager is responsible for the implementation of the site-specific control. Use can be made of the malaria prevention checklist (attached to this Safety Procedure).

Effective control includes but may not be limited to:

- Provide / repair window and door screens
- Eliminate standing water where possible
- Provide mosquito free bedrooms
- Fumigate for mosquitoes.

Application of control measures must be recorded.

1.5.5 Departure

Personnel should understand the post-exposure malaria precautions: Continue medication according to instructions, awareness of malaria symptoms and importance of early treatment.

The malaria post-exposure information (attached to this Safety Procedure) in the project field binder should be read carefully by personnel leaving the area.

1.5.6 Reporting and investigation

No regime is 100% effective and therefore prompt diagnosis is essential. Any unexplained fever developing after arrival in a malaria area should be investigated.

Any case of malaria, for non-immune as well as for semi-immune staff, must be reported immediately to your Project Manager or the Base Manager, who shall decide whether it is a contractual requirement to inform the client. An Incident Report Form must be completed and issued. When reporting to the medical practitioner, it is essential to mention the symptoms, use of medication, use of repellent on skin, use of insect repellent on outer clothes, suspected location.

The Operations Manager is responsible for conducting an investigation for any case of malaria in order to identify the cause and to strengthen the Malaria Control Program.

For ExxonMobil related projects only:

Reporting of malaria cases is required within 24 hours.

1.6 Documentation

The Operations Co-ordinator will register all visits of staff to a travel clinic.

The Base Manager will register malaria control of the local base.

The QA and HSE manager will register all incidents.

For ExxonMobil related projects only:

The Operations Co-ordinator will file the signed attestation letters and the malaria questionnaires for first-time visitors.

1.7 Final Note

Personnel should be aware that they can opt to stop an operation **at any time** he/she feels unsafe without fear of redress from Fugro GEOS or the Client as Fugro GEOS puts safety as a higher priority than risking an accident.

1.8 Attachments

ExxonMobil Attestation Malaria Control Protocol
ExxonMobil Malaria Questionnaire (first-time visitors)
Malaria Prevention Checklist Local Base
Malaria Post-Exposure Information

Uncontrolled copy

EXXON MOBIL
Malaria Chemoprophylaxis Compliance Requirements
Employee Statement of Understanding and Compliance

I understand that both ExxonMobil and my employer are committed to a safe, healthy, and productive workplace for all employees. My employer takes very seriously the threat of illness or death presented by malaria and has implemented a malaria control program with the stated goal of no cases of malaria among its non-immune populations. I also understand that this program applies to me because I am considered "non-immune" with respect to malaria at the site(s)/in the location(s) where I am going. I have been provided with information about the malaria control program as it applies to where I am going and if I have any questions about this program I understand that I should seek guidance from a qualified medical professional.

I further understand and agree that:

1. It is a condition of my assignment in/travel to a malarious location that I take an approved malaria chemoprophylaxis (medication designed to help prevent me from contracting malaria if bitten by a mosquito carrying the parasite that causes the disease). My travel medicine professional has advised me on malaria prevention and that the malaria chemoprophylaxis currently available includes Malarone, Doxycycline, Mefloquine (Lariam), or other medication at least as effective as one of these three, taken according to a prescribed treatment regimen.
2. I have been advised to consult a travel medicine professional with questions I may have about the side effects that may be inherent in taking malaria chemoprophylaxis.
3. I am subject to unannounced, random and periodic testing to determine my compliance with the requirement that I take approved malaria chemoprophylaxis as described above. As part of this testing I am required to provide, when/where instructed, a urine sample for laboratory verification of my use of an approved malaria chemoprophylaxis according to the prescribed treatment regimen.
4. If I refuse to submit to a test or if a medical review of the laboratory analysis of my urine specimen does not indicate that I am taking an approved malaria chemoprophylaxis, I may be declared unfit for work in a malarious location and may be removed from the ExxonMobil site.
5. I am aware of the symptoms of malaria and I agree to be in regular contact with the travel medicine professional regarding prevention and post-treatment, if necessary.

Print Name: _____

Signature: _____

Date: _____

EXXON MOBIL

To be completed by first-time visitors to malaria area

Name Date of entry

Nationality Date of exit

Company Occupation

Housing

Medication

- What kind of chemoprophylaxis are you using now?
- What is your schedule for taking it?
- Do you have sufficient supply for your stay?

Mosquito repellent

- What kind of mosquito repellent are you using?
- Do you have sufficient supply for your stay?

Permethrin treatment

- Are you aware of insecticide treatment available for outer clothing?
- Do you have clothing that you want to be treated?
- Do you know the procedure for having your clothing treated?

Malaria awareness

- If one of below mentioned questions is answered with No, please contact your local manager ASAP.
- Are you aware and knowledgeable about the risk of malaria in this region?
- Do you know how to protect yourself from mosquito bites?
- (Skin insect repellent, clothing (treated, long sleeves/pants, bed nets, etc.))
- Are you able to comply with taking chemoprophylaxis appropriate for this region?
- Do you know the preferred medical provider to contact, should you feel unwell, to determine if the diagnosis is malaria?
- Do you have an adequate supply of medications, insect repellents, insecticide for clothing, bed nets for your stay?
- Do your housing facilities appear mosquito proof?
(Bed nets, window/door screens)

I have read and understand the above and I have no further questions regarding malaria.

Signature

Date

Please return the completed form to the base manager.

MALARIA PREVENTION CHECKLIST LOCAL BASE

Facility	Inspect	Breeding site control	Outdoor spraying	Indoor spraying	Bed net
Base office	Verify the permanent insect proofing has not deteriorated. Identify and eliminate temporary breeding sites	Verify the controls on non-temporary breeding sites have not deteriorated	Not applicable	Fumigate at a regular basis	Not applicable
Outdoor	Identify and eliminate temporary breeding sites	Verify the controls on non-temporary breeding sites have not deteriorated	Apply insecticide on exterior walls, fences, trees, shrubs	Not applicable	Not applicable
Vehicle	Check if vehicle has live mosquitoes during each use and use insecticide, if necessary	Not applicable	Not applicable	Apply insecticide if live mosquitoes are detected	Not applicable
Warehouse / Storage Areas	Verify the permanent insect proofing has not deteriorated. Identify and eliminate temporary breeding sites	Not applicable	Apply residual insecticide on exterior walls and below floor, if elevated	Apply residual insecticides on interior walls and ceilings	Not applicable
Accommodation	Verify the permanent insect proofing has not deteriorated. Identify and eliminate temporary breeding sites	Verify the controls on non-temporary breeding sites have not deteriorated	Not applicable	Use fogging / spraying / coils etc	Inspect net to be mosquito proof, if available

Information for the Traveller Leaving the Malaria Area

Awareness

It is important to remain aware of the risks of malaria during the departure procedure and up to 4 weeks after arrival in your country. Malaria-carrying mosquitoes might also be around in the airport while waiting for your flight to bring you home, so keep applying insect repellents and wear appropriate clothing (long sleeves, long pants).

Do not leave your malaria awareness behind once the aeroplane takes off. You can still develop malaria after you have left the malaria area while you are back in your country. Symptoms of malaria may not display themselves until 2-3 weeks after leaving the malaria area. Symptoms of malaria are not really specific, particularly if you have taken your medication correctly. Malaria symptoms can include fever, chills, muscle aching, eye pain, headache, loss of appetite and vomiting or other flu symptoms.

Compliance

Compliance with the prescribed regime is essential. Most deaths occur in those who do not comply. Anti-malaria medication might need to be taken up to 4 weeks after leaving the malaria area using the same drugs you were taking while in the country (consult your medication instructions). This will prevent the great majority of infections.

Diagnosis

If you develop any of the above symptoms within 2-4 weeks after leaving the malaria area, you should seek medical advice immediately, even on a weekend. Untreated malaria can progress rapidly and even become fatal in just a day or so. Inform your physician that you were in a malaria area recently and inform him about the medication taken.

Do not delay evaluation and treatment.

Many physicians, not working with returning travellers regularly, may not readily recognise the symptoms of malaria. Also, bear in mind that your symptoms may be atypical because of the prophylactic medication you are taking.

SP237: INSTALLATION & MAINTENANCE OF INSTRUMENTS OVER THE SIDE

1.1 Introduction

Fugro GEOS undertakes operations that can involve the installation or maintenance of oceanographic sensors onboard vessels or offshore installations. Current measurement systems and wave monitoring systems are deployed in such ways from the deck edge where the personnel involved work at or over the side of the installation. Procedure SP228 covers the general Hazard Identification, Risk Assessment & Control methodologies when preparing for an offsite visit. However, this procedure may be used as an aid to risk assessment and control in the specific circumstances of installing, deploying, recovering and working with over the side equipment. It is not intended that this procedure covers any of the work involved in the deployment or recovery of mooring equipment from vessels which is covered by procedure SP231, Mooring Equipment Deployment & Retrieval.

This document is structured to provide general information relating to working over the side, weather conditions in relation to working over the side, and lists of the key items to consider before carrying out work over the side.

1.2 Overview

For the purpose of this document, working over the side means working:

- At the deck edge where no safety barrier/handrail is in place.
- At the deck edge where the safety barrier that is in place is temporary (e.g. a single length of chain).
- At the deck edge where a safety barrier is in place but where a part of the persons body (not arms) is positioned over the deck edge (e.g. a person leaning over a handrail).
- Over the deck edge (e.g. where scaffolding has been erected over the side to facilitate access).
- Where otherwise a risk of falling overboard exists.

1.3 General Information

For over the side operations such as the deployment or recovery of an ADCP from an offshore installation, the deployment and recovery methodology should be investigated prior to shipping the equipment to site. This investigation is to ensure that, where practicable, the requirement for a person to lean over the side during the deployment or recovery is minimised. Deployment A-frames and davits should be designed to allow the equipment to be lifted from the deck to a position over the side without requiring a person to physically lean bodily outside of the deck edge. By so doing the risk to the person working at the deck edge is kept as low as is reasonably practicable.

The following general information applies to working over the side on offshore installations:

- Working over the side should be scheduled to take place during daylight hours if the work schedule allows, unless local deck lighting is considered adequate for work to be carried out safely.

- Working over the side must only be undertaken by persons who have observed the deployment of equipment over the side before.
- The prevailing and forecasted weather conditions must be taken into account before deciding whether it is safe to work over the side.
- Before starting work, consideration should be given to the realistic time required to fully undertake the work scope in reference to the weather forecast and sunset time (i.e. once the work has been started, can it be stopped before the weather changes/daylight diminishes).
- A risk assessment shall be carried out before the work commences.
- All members of the party are responsible for their own safety and the safety of others.
- All personnel should ensure that they know what to do in case of emergency.
- All personnel shall wear appropriate PPE for the work and prevailing conditions (see PPE Risk Assessment in SP230: Life Saving/Personal Protective Equipment). As a guideline, minimum PPE should comprise of a hard hat (green coloured if platform policies dictates), gloves, safety boots, overalls (fire retardant if platform policies dictates), lifejacket, eye protection i.e. safety glasses. When working over the side fall arrest equipment shall be worn.
- The User shall check all equipment prior to use.
- Any Client or Offshore/Onshore Installation specific procedures should be adhered to.
- The Control Room should be made aware and approve your work before you commence.
- The Control Room should be requested to bring the stand-by vessel to a close-in location to provide support in case of a man-overboard situation (if vessel available).
- As a minimum one extra person should be present when person/s are working over the side.
- The extra person not working over the side should be equipped with a two-way radio to communicate with the Control Room and stand-by vessel in case of emergency.
- All personnel shall report any defects in equipment or systems.

1.4 Weather (Go / No Go)

Before any over the side work is undertaken, the prevailing and forecasted weather conditions must be assessed with reference to the presence, or likelihood of onset of, adverse weather (i.e. environmental conditions that may affect people or equipment to such an extent that precautionary measures must be taken to maintain a safe system of work). Adverse weather conditions include snow, ice, hail, lightning, heavy rain, high winds, poor visibility, severe sea state and strong currents. This information may be taken from the platform's met station, from hand held equipment and/or from a personal judgement of conditions, both in advance of the work and whilst at work. Weather forecasts, when available, must be reviewed to assess any potential for changes in the weather during the time that it will take to complete the whole operation. Throughout the operation, personnel should keep a constant eye on the prevailing weather conditions.

The team leader, in agreement with the offshore installation, is responsible for making the decision about starting operations. Weather conditions can quickly change and the effects of short-term variations, such as wind gusts, should be considered. A guide to the limits at which safety and the ability to undertake the work to be carried out could be compromised is provided in the tables below. It should be noted that these limits are based on working onboard large semi-submersible drilling rigs, drillships and platforms.



For work on smaller vessels the thresholds should be lowered accordingly. In addition, it should be noted that specific offshore platforms may also have environmental limits in place, which may differ from those listed below and which should also be taken into consideration.

Environmental Conditions at the Work Site	Action
Wind Speed <25kts Wind Gust <30kts	The work may be carried out safely, however other environmental and operational considerations should be taken into account. It is up to the site team to decide if the work should be carried out.
Wind Speed >25kts Wind Gust >30kts	Only physical inspections of on-deck equipment not requiring the removal of loose items (e.g. covers) may be carried out. Other environmental and operational considerations should still be taken into account and may prevent any inspection work from taking place. It is up to the site team to decide if the work should be carried out.
Wind Speed/Gust >35kts	No work should be attempted in winds exceeding 35kts local to the work site.
Wave Height <6m	The work may be carried out safely, however other environmental and operational considerations should be taken into account. It is up to the site team to decide if the work should be carried out.
Wave Height >6m	Only physical inspections of on-deck deployment equipment may be carried out. Other environmental and operational considerations should still be taken into account and may prevent any inspection work from taking place. It is up to the site team to decide if the work should be carried out.
Air Temperature <5°C	Wind chill should be taken into account. If protective clothing is worn and conditions still cause the loss of feeling in hands and/or feet in <30min the work should be stopped.
Precipitation/Sea Spray	Electrical junction boxes should not be opened during periods of precipitation or sea spray, nor should any electrical wiring/re-wiring be attempted. Decks can become very slippery when wet. Caution should be used.
Snow and Ice Accumulation	Clear snow and ice from work area. Spread grit and/or salt on the area to clear ice build up if required.
Wind Chill Conditions	Minimise individual's exposure.
Electrical Storms	Suspend external operations and retire inside.

Note: The above refers to the conditions at the work site where, depending on the wind direction, there may be a degree of shelter compared with those conditions measured by the installation's met station.



1.4.1 Temperature

The following table shows how increasing wind speed has a chilling effect on temperature:

Wind Speed (Kts)	Temperature (°C)				
	+10	+5	-1	-7	-12
0	+10	+5	-1	-7	-12
4	+9	+3	-3	-9	-15
9	+5	-2	-9	-16	-23
14	+2	-6	-13	-21	-28
18	0	-8	-16	-23	-32
22	-2	-11	-19	-28	-36
27	-2	-11	-19	-28	-36
31	-3	-12	-20	-29	-37
36	-3	-12	-21	-30	-38

1.5 Working Over the Side

The following is a list of the key check items to be considered in reference to carrying out the work over the side:

- Know your level of acrophobia (fear of heights). If the height above the water overwhelms you, do not continue.
- Inform the Control Room before commencing work.
- Ensure that the stand-by vessel has actually moved into the close-in position before commencing over the side work (if applicable).
- Always use suitably checked, maintained, tested and certified fall arrest equipment when working over the side. Do not entrust your personal safety to unsuitable or inadequate equipment. Ensure that the harness is secured to a fixed point when at the work site location and ensure that the harness is worn correctly and tightened appropriately.
- Always attach lanyards to all tools and equipment when working over the side, and tie lanyards to a fixed point.
- Never over stretch. If the instrument is out of safe reach then specialist personnel will be required to work over the side of the working area.
- Always ensure that all materials are removed from the work site when work has been completed.
- Always ensure that all handrails and barriers are returned to their positions both if you leave the area unattended prior to completion of the work, and when work has been completed.
- Always inform the deck crew of the safe completion of work upon completion.

1.6 Final Note

Personnel should be aware that they can opt to stop an operation **at any time** he/she feels unsafe without fear of redress from Fugro GEOS or the Client as Fugro GEOS puts safety as a higher priority than risking an accident.

SP238: WORKING WITH LOW VOLTAGE EQUIPMENT (<50VOLTS)

1.1. Introduction

Many Fugro GEOS operations involve the installation and / or maintenance of meteorological or oceanographic sensors in a wide variety of locations (e.g. workshops, vessels, offshore installations, land environments). Inevitably electricity is involved, either in the form of signal transmission or instrument powering. Safety Management Procedure SM104 discusses the overall consideration of HSE hazards and Safety Procedure SP228 covers the general Hazard Identification, Risk Assessment & Control methodologies when preparing for an offsite visit. This Safety Procedure (SP238) may be used as an aid to risk assessment and control in the specific circumstances of working with low voltage equipment.

This procedure is structured to provide general information relating to working with low voltage equipment including a list of the key items to consider before carrying out work, the assessment of weather conditions, undertaking work in hazardous areas and the electrical isolation of equipment.

Several items of meteorological or oceanographic equipment can be powered externally either on a temporary basis (e.g. while downloading data) or on a permanent basis (e.g. a RigADCP installation). For such equipment voltages in excess of 50V (e.g. up to 240V, or even 1000V) may exist in parts of the circuitry. In such cases, Safety Procedure SP239, Working with High Voltage Equipment, must be referred to in conjunction with this procedure.

1.2. Overview

Working with low voltage equipment means working on equipment or wiring that may be reasonably expected to have a voltage of 50V or less. Such voltages may be expected to exist within the following:

- Meteorological instrumentation (e.g. RM Young anemometers, Vaisala pressure sensors).
- Oceanographic instrumentation (e.g. S4 current meters, Seabird CTD sensors).
- Some junction and marshalling boxes related to the above.
- All circuit boards.

Before working with any of the above, the manufacturer's manual specific to the instrument being worked on must be consulted to identify the voltages that may reasonably be expected to occur under normal conditions. In addition, all personnel required to work with low voltage equipment will have undertaken at the minimum a basic electrical safety-training course in working with low voltage equipment. Further training will be provided as necessary.

1.3. General Information

The following general information applies to working with low voltage equipment on onshore and offshore installations:

- All installation and maintenance procedures must be agreed with the installation's site personnel (e.g. Electrical Technician) prior to work commencing, this usually being conducted in the form of a toolbox

talk and the generation of a Permit to Work (See Safety Procedure SP240, Lockout Tagout and Permit to Work). Under no circumstances must existing offshore installation wiring or electrical equipment be worked on or isolated without prior agreement from the installation's Electrical Technician.

- On some installations, portable electrical equipment that has a mains supply (e.g. laptop PCs) require electrical inspection by rig personnel prior to use.
- A risk assessment should be carried out before the work commences. This must include an appraisal of electrically isolating the equipment prior to work commencing.
- The installation's site personnel should be consulted to identify whether the proposed work site, and access to, are within hazardous areas. If a hazardous area is to be entered, the installation's site personnel must approve the transportation and use any electrical equipment at the work site prior to the work commencing.
- The designated Party Chief should take charge of the operation and ensure that site personnel are aware of the work scope (ideally a work scope should be supplied to the site personnel at least one week in advance of a visit to an offshore installation).
- If the work to be undertaken is in an unsheltered environment, the prevailing and forecast weather conditions should be taken into account (specifically in relation to levels/occurrence of humidity, precipitation and electrical storms) before deciding whether it is safe to work.
- All members of the party are responsible for their own safety and for the safety of others.
- All personnel should ensure that they know what to do in case of emergency.
- All personnel should wear appropriate PPE for the work and prevailing conditions. As a minimum this should comprise of a hard hat (green coloured where applicable), fire retardant overalls, eye protection, i.e. safety glasses (see SP230, Life Saving / Personal Protective Equipment, and in particular the PPE Assessment within that procedure). At no time should work be undertaken without the use of the appropriate control measures, including PPE.
- Any items of clothing that could generate static electricity (e.g. woollen clothing) should not be worn.
- The power requirements of the equipment to be serviced should be known prior to any servicing. Specific instrument documentation should be consulted prior to servicing.
- The user of the equipment should check all test equipment prior to use.
- The electrical device should be isolated and powered down where possible
- All equipment used should be insulated (e.g. screwdrivers, pliers etc.).
- All multimeter test leads must be fuse-protected and be fitted with finger protection shields.
- An earth-grounded wrist strap should be used when handling circuit boards and instrumentation to prevent static discharge onto the instrument that may result in damage to the instrument.
- All personnel should report any defects in equipment or systems.
- All personnel should be electrically competent.

1.4. Minimising Risks: Electrical Isolation

One of the most effective steps towards minimising the risk of injury whilst working on electrical apparatus is to ensure that the circuitry is electrically isolated (e.g. by locking off or removal of fuses). This is referred to as 'dead' working. Working on or near 'live' uninsulated electrical apparatus should NOT normally be carried out. 'Live' working should only be undertaken if it is unreasonable to work 'dead', AND it is reasonable to work 'live', AND suitable precautions are taken to prevent injury. Such precautions include:

- Control of the work by a permit to work and adequate supervision;
- Control of the work area including provision of adequate space, access and lighting;
- Adequate information;
- Personnel with sufficient knowledge and experience;
- Use of suitable tools, equipment, insulated barriers and PPE;
- Adequate accompaniment.

If the user of the equipment is unsure of the details of the electrical wiring or circuitry the work should not be undertaken on a non-electrically isolated system.

1.5. Working Outdoors

For Fugro GEOS projects the majority of metocean equipment is located on offshore installations in an exposed environment. When working in such conditions several factors must be considered:

- Current and future weather conditions.
- Existence of hazardous areas (where flammable gases may be present).
- Work site conditions.

1.5.1. Hazardous Areas

Certain areas of vessels and onshore and offshore installations are designated "hazardous areas" (e.g. vent stacks on platforms), these being areas within which there is an increased risk of exposure to flammable liquids or gases, or to the release of liquids or gases at high pressure. Access to and the undertaking of work within such areas is therefore restricted, this usually being controlled by a permit to work system. Any work undertaken should be restricted to that agreed by the permit. Any deviation from the work detailed on the work permit must first be authorised by the relevant site personnel prior to the work being undertaken.

1.5.2. Work Site Conditions

The work site should be cleared and kept clear of any potential electrical discharges, dirt and moisture.

The work site should be assessed for risk of spray from the sea (i.e. flung spray), standing water nearby (e.g. puddles on roofs above the work site on moving vessels and floating installations) and from water run-off. The work site should also be assessed for any conflicting operations (e.g. hosing of decks nearby).

1.6. Working with Instrumentation or Computer Equipment

When servicing or installing meteorological or oceanographic system equipment, instruments or junction boxes may need to be worked on when live for fault-finding and/or status verification checks. The removal of housings, guards, ventilation grills and such like may be necessary for this and may result in the exposure of live components within the unit. Personnel should work on live equipment only if he/she is confident in his/her competency in electrical awareness and safety.

If it is necessary to work on an item of equipment that contains live components care should be taken as electric shocks can still be obtained from low voltage equipment. Ensure that the following items are undertaken:

- Ensure that the power lead is in a good condition (i.e. the insulation is not cut). If the lead is not in good condition, replace before undertaking any work.
- Ensure that the correct fuse is being used to protect the system from electrical 'shorting'.
- Remove all sources of liquid from the local vicinity (e.g. drinks).
- Use an anti-static wrist strap at all times, together with insulated tools (e.g. screwdrivers, pliers).
- Multimeter test leads must be fuse-protected and be fitted with finger protection shields.
- Take care to avoid tools, test equipment or components (e.g. nuts, bolts and washers) from coming into contact with any circuitry.
- Refer also to Section 1.4 of this document to ensure risks are minimised by following electrical isolation methods.

When working on equipment that has been isolated, a risk of electric shock may still exist from charged items within the device (e.g. capacitors). When working on isolated equipment, the user should therefore be aware of the existence of any such charged components within the device.

1.7. Technical Instructions

Each instrument has its own Technical Instruction (TI), and scientific personnel should be familiar with the content of these prior to the service visit. They detail the technical requirements for preparing, configuring and servicing the specific instrument.

The following should be noted when preparing instruments:

- When setting up instruments, follow the relevant TI. Particular attention should be paid to battery terminals, voltages and other power requirements so as not to damage the equipment or cause injury.
- When disassembling an instrument during set up, carry out the work under shelter if possible. Water ingress by seawater or rain may damage instrument electronics. Ensure nuts, screws, caps, etc are not over-tightened when reassembling; use a torque wrench where possible and refer to the manufacturer's manual as appropriate.

1.8. Final Note

Personnel should be aware that they can opt to stop an operation **at any time** if he/she feels unsafe without fear of redress from Fugro GEOS or the Client as Fugro GEOS puts safety at a higher priority than completing the task required.

SP239: WORKING WITH HIGH VOLTAGE EQUIPMENT (50-240VOLTS)

1.1. Introduction

Many Fugro GEOS operations involve the installation and / or maintenance of meteorological or oceanographic sensors in a wide variety of locations (e.g. workshops, vessels, offshore installations, land environments). Inevitably electricity is involved, either in the form of signal transmission or instrument powering. Safety Management Procedure SM104 discusses the overall consideration of HSE hazards and Safety Procedure SP228 covers the general Hazard Identification, Risk Assessment & Control methodologies when preparing for an offsite visit. This Safety Procedure (SP239) may be used as an aid to risk assessment and control in the specific circumstances of working with high voltage equipment.

This document is structured to provide general information relating to working with high voltage equipment including a list of the key items to consider before carrying out work, the assessment of weather conditions, undertaking work in hazardous areas and the electrical isolation of equipment.

In the majority of circumstances, Fugro GEOS' meteorological and oceanographic equipment does not use voltages exceeding 240V and as such this procedure covers work on high voltage equipment defined as being between 50V and 240V. Information specific to working with high voltages when working on computers is also included in this document. If voltages between 0V and 50V are involved, refer to SP238, Working with Low Voltage Equipment.

1.2. Overview

Electrical accidents can result in serious injury or death to a person through shock, serious burns and / or fire. Reflex reactions to a mild shock can also cause a person to injure both themselves and their colleagues. Electrical shock can be received in two ways:

- Direct Contact: By coming into contact with live parts of the equipment, which should not normally be exposed;
- Indirect Contact: Where a normally exposed part of the equipment has become live due to a fault.

The best way to reduce the risk of an electrical shock when working on an item of equipment is to work only on equipment that has been isolated from the high voltage power supply. Further to this, the user of the equipment (User) must take steps to ensure that there is negligible risk of the equipment becoming re-powered (e.g. isolating the equipment in the immediate vicinity of the User's work site), using adequate isolation labelling, locking the isolation off, stationing a person to guard the isolation point). For further information, refer to Safety Procedure SP240, Lockout Tagout and Permit to Work.

High voltages may be expected to occur within the following equipment:

- Meteorological instrumentation.
- Oceanographic instrumentation.
- Junction and marshalling boxes related to the above.

Before working with any of the above, the manufacturer's manual specific to the instrument being worked on must be consulted to identify the voltages that may reasonably be expected to occur under normal conditions.

All personnel required to work with high voltage equipment will have undertaken at the minimum a basic electrical safety-training course in working with high voltage equipment. Further training will be provided as necessary.

1.3. General Information

The following general information applies to working with high voltage equipment on onshore and offshore installations:

- All installation and maintenance procedures must be agreed with the installation's site personnel prior to work commencing, this usually being conducted in the form of a toolbox talk and the generation of a Permit to Work (See Safety Procedure SP240, Lockout Tagout and Permit to Work).
- A risk assessment shall be carried out before the work commences.
- The installation's site personnel should be consulted to identify whether the proposed work site, and access to, are within hazardous areas. If a hazardous area is to be entered, approval for the carrying and use of all electrical equipment to the work site must be granted by the installation's site personnel prior to the work commencing.
- The designated Party Chief shall take charge of the operation and shall ensure that site personnel are aware of the work scope (ideally a work scope should be supplied to the site personnel at least one week in advance of a visit to an offshore installation).
- If the work to be undertaken is in an unsheltered environment, the prevailing and forecast weather conditions must be taken into account before deciding whether it is safe to work.
- Before starting work, consideration should be given to the realistic time required to fully undertake the work scope in reference to the weather forecast (i.e. once the work has been started, can it be stopped before the weather changes).
- All members of the party are responsible for their own safety and for the safety of others.
- All personnel should ensure that they know what to do in case of emergency.
- All personnel shall wear appropriate PPE for the work and prevailing conditions. As a minimum this should comprise of a green coloured hard hat, gloves, safety boots, fire retardant overalls, eye protection, i.e. safety glasses. (see SP230, Life Saving / Personal Protective Equipment, and in particular the PPE Assessment within that procedure.) At no time should work be undertaken without the use of the appropriate control measures, including PPE.
- Any items of clothing that could generate static electricity (e.g. woollen clothing) should not be worn.
- The power requirements of the equipment to be serviced should be known prior to any servicing. Specific instrument documentation should be consulted prior to servicing.
- The User shall check all test equipment prior to use.
- The electrical device should be isolated and powered down where possible. The device must then be tested to ensure that it has powered down.
- All equipment used should be insulated (e.g. screwdrivers, pliers etc.).

- An earth-grounded wrist strap should be used when handling circuit boards and instrumentation to prevent static discharge onto the instrument that may result in damage to the instrument.
- All personnel shall report any defects in equipment or systems.
- All personnel shall be electrically competent.

1.4. Minimising Risks: Electrical Isolation

One of the most effective steps towards minimising the risk of injury whilst working on electrical apparatus is to ensure that the circuitry is electrically isolated (e.g. by locking off or removal of fuses). This is referred to as 'dead' working. Working on or near 'live' uninsulated electrical apparatus should NOT normally be carried out. 'Live' working should only be undertaken if it is unreasonable to work 'dead', AND it is reasonable to work 'live', AND suitable precautions are taken to prevent injury. Such precautions include:

- Control of the work by a permit to work and adequate supervision;
- Control of the work area including provision of adequate space, access and lighting;
- Adequate information;
- Personnel with sufficient knowledge and experience;
- Use of suitable tools, equipment, insulated barriers and PPE;
- Adequate accompaniment.

If the User is unsure of the details of the electrical wiring or circuitry the work should not be undertaken on a non-electrically isolated system.

1.5. Working Outdoors

For Fugro GEOS projects the majority of metocean equipment is located on offshore installations in an exposed environment. When working in such conditions several factors have to be considered:

- Current and future weather conditions.
- Existence of hazardous areas (where flammable gases may be present).
- Work site conditions.

1.5.1. Weather Conditions

Before any work involving electricity is undertaken, the prevailing and forecasted weather conditions at the work site must be assessed with reference to the presence, or likelihood of onset of adverse weather (i.e. environmental conditions that may affect people or equipment to such an extent that precautionary measures must be taken to maintain a safe system of work). In reference to working with high voltage equipment, adverse weather conditions include high relative humidity, precipitation, high winds and electrical storms. This information may be taken from the platform's met station and/or from hand held equipment as well as observations, both in advance of the work and whilst at work. If the proposed work to be undertaken cannot be stopped and put into a safe condition quickly, weather forecasts, when available, must be reviewed to assess any potential for changes in the weather during the time that it will take to complete the work. Commencement of work can then be considered at an appropriate time.

The Party Chief, in agreement with the platform, is responsible for making the decision about starting work. Weather conditions can quickly change and the effects of short-term variations, such as precipitation, should be considered. Throughout the work, personnel should keep a constant eye on the prevailing weather conditions.

A guide to the limits at which safety and the ability to undertake the work to be carried out could be compromised is provided in the table below. It should be noted that specific offshore platforms might also have environmental limits in place, which may differ from those listed below and which should also be taken into consideration.

Environmental Conditions at the Work Site	Action
Precipitation	Electrical junction boxes and sensors should not be opened during periods of precipitation or high humidity (e.g. fog). No electrical wiring or re-wiring should be attempted.
Wind Speed/Gust >35kts	No work should be attempted in winds exceeding 35kts local to the work site.
Electrical storms	It is advisable that no work should be attempted outdoors whilst there is a high risk of lightning activity.

Note: Exposing junction boxes or sensors to any form of precipitation could result in damage to the sensor in question, or could result in a low voltage electrical discharge.

1.5.2. Hazardous Areas

Certain areas of vessels and onshore and offshore installations are designated “hazardous areas” (e.g. vent stacks on platforms), these being areas within which there is an increased risk of exposure to flammable liquids or gases, or to the release of liquids or gases at high pressure. Access to and the undertaking of work within such areas is therefore restricted, this usually being controlled by a permit to work system. Any work undertaken should be restricted to that agreed by the permit. Any deviation from the work detailed on the work permit must first be authorised by the relevant site personnel prior to the work being undertaken.

1.5.3. Work Site Conditions

The work site should be cleared and kept clear of any potential electrical discharges, dirt and moisture.

The work site should be assessed for risk of spray from the sea (i.e. flung spray), from standing water nearby (e.g. puddles on roofs above the work site on moving vessels and floating installations) and from water run-off.

1.6. Working with Instrumentation or Computer Equipment

When servicing or installing new meteorological or oceanographic system equipment, instruments or junction boxes may need to be worked on when live for faultfinding and/or status verification checks. The removal of housings, guards, ventilation grills and such like may be necessary for this and may result in the exposure of live components within the unit. If it is necessary to work on an item of equipment that contains live components, extreme care should be taken. Ensure that the following items are undertaken:

- Ensure that the power lead is in a good condition (i.e. the insulation is not cut). If the lead is not in good condition, replace before undertaking any work.
- Ensure that the correct fuse is being used to protect the system from electrical 'shorting'.
- Remove all sources of liquid from the local vicinity (e.g. drinks).
- Use an anti-static wrist strap at all times, together with insulated tools (e.g. screwdrivers, pliers).
- Multimeter test leads must be fuse-protected and be fitted with finger protection shields.
- Take care to avoid tools, test equipment or components (e.g. nuts, bolts and washers) from coming into contact with any circuitry.
- Refer also to Section 1.4 of this document to ensure risks are minimised by following electrical isolation methods.

Personnel should work on live equipment only if confident in his/her competency in electrical awareness and safety.

When working on equipment that has been isolated, a risk of electric shock may still exist from charged items within the device (e.g. ADCPs). When working on isolated equipment, ensure that further to the items listed above, the following is undertaken:

- Ensure that any capacitors are adequately discharged.

1.7. Technical Instructions

Each instrument has its own Technical Instruction (TI), and scientific personnel should be familiar with the content of these prior to the service visit. They detail the technical requirements for preparing, configuring and servicing the specific instrument.

The following should be noted when preparing instruments:

- When setting up instruments, follow the relevant TI. Particular attention should be paid to battery terminals, voltages and other power requirements, so as not to damage the equipment or cause injury.
- When disassembling an instrument during set up, carry out the work under shelter if possible. Water ingress by seawater or rain may damage instrument electronics. Ensure nuts, screws, caps, etc are not over-tightened when reassembling. Use a torque wrench where possible and refer to the manufacturer's manual as appropriate.

1.8. Final Note

Personnel should be aware that they can opt to stop an operation **at any time** he/she feels unsafe without fear of redress from Fugro GEOS or the Client as Fugro GEOS puts safety as a higher priority than risking an accident.

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SP240: LOCKOUT TAGOUT AND PERMIT TO WORK

1.1 Introduction

Fugro GEOS undertakes operations that involve the use of hazardous energy sources. Safety Management Procedure SM104 discusses the overall consideration of HSE hazards and Safety Procedure SP228 covers the general Hazard Identification, Risk Assessment & Control methodologies to be used when preparing to carry out a potentially hazardous task, or when a risk assessment for that task requires review. This Safety Procedure (SP240) may be used to determine when and how lockout tagout and permit to work should be used as control measures within the risk assessment and the task itself.

1.2 Application

Most offshore installations have their own lockout tagout and permit to work systems in operation. It is a requirement that all personnel working on such facilities comply with these procedures. Fugro GEOS personnel should be trained in these procedures. In cases where a formal lockout tagout and / or permit to work system does not exist, or procedures are inadequate, or when working at Fugro GEOS facilities, this procedures (SP240) takes precedence and / or shall be used.

1.3 Definitions and Scope – Permit to Work

A Permit to Work System is a written system used to control certain types of work that are potentially hazardous. A Permit to Work system aims to provide a flexible system to cover infrequent, potentially hazardous activities not adequately covered by standard systems and to ensure that proper planning and consideration is given to the hazards and risks associated with a particular job. They are used mostly to cover maintenance work or work carried out by contractors.

A Permit to Work (PTW or Work Permit) is a document that specifies the work to be done, the time and place it should be done and by whom and the precautions to be taken. They determine who is carrying out the work, who is affected, the type of work and the control measures and the timescale. A PTW is completed by the person who shall be carrying out the work and authorised by a supervisor, who is a person sufficiently knowledgeable concerning the task, hazards, precautions etc. PTWs must be displayed at the work site and should be checked back in by the authoriser on completion of the task. Work being carried out should be properly supervised, especially at the completion of the task to ensure that the workplace is left secure.

1.3.1 Permit to Work Principles

- The control measures described shall be adequate to protect persons from injury, which could result from foreseeable causes
- The control measures must remain secure for the duration of the work to be undertaken
- PTWs must contain clear rules about how the job should be controlled and abandoned in the case of an emergency
- PTWs must not be used to sanction or allow any unsafe operation to take place (e.g. operating a machine without the guard in place)
- The equipment and / or work area must be identified clearly. Use diagrams if this assists

- The instructions must be clear and unambiguous
- The life of a PTW shall be limited (they must not be open ended)
- The system / work shall be monitored, supervised and / or audited by a responsible person
- If more than one PTW are in place, which affect one another, they must be cross-referenced

1.3.2 Permit to Work System Uses

Use of the Permit to Work System may be employed, but is not limited to, the following examples:

- Maintenance work on electrical command panels (electrically competent contractors only)
- Other electrical work
- Working above 3 metres
- Working over the side of a vessel
- Working in confined spaces (Fugro GEOS personnel do not work in such situations)
- Flame cutting or welding (Fugro GEOS personnel do not carry out this type of work)

1.4 Definitions and Scope – Lockout Tagout

Lockout Tagout may be considered a subsidiary of the Permit to Work System. It is intended to protect workers and other affected persons from the unexpected energisation, start-up or release of hazardous energy during the performance of servicing or maintenance operations.

1.4.1 Forms of Hazardous Energy

Hazardous Energy Sources includes, but is not limited to:

- Electrical
- Hydraulic
- Mechanical
- Compressed Air
- Petrol / diesel
- Gas
- Steam

1.4.2 Lockout Tagout Procedure

- Notify all affected persons that servicing is required and that the energy source(s) must be shut off
- Identify the type and magnitude of the energy sources (refer to the manual etc.)
- Shut down the equipment normally (using its standard stop button etc) and deactivate the energy isolation device
- Lock the energy isolation device with one or more individually-assigned locks (as appropriate) and use the tag to detail who has locked the equipment, why it has been shut down and the date and time of the shutdown
- Dissipate any stored or residual energy by grounding the machine, repositioning (part of the) machine, bleeding the fluid, etc. Do not assume that this happens automatically

- Check that no personnel are exposed and then verify that the equipment is isolated by attempting to operate it using the normal controls. Return the controls to their off or neutral position
- Carry out the servicing / maintenance or other work required
- When the work has been completed, check the equipment and the immediate surrounds to ensure that all non-essential items and / or personnel etc have been removed
- Check that the machine is operationally intact and that all its controls are in the neutral or off position
- Remove all blocking / energy isolation / lockout tagout devices and re-energise the equipment. Note that individuals should remove their own locks
- Notify all affected persons that the equipment is ready for use

Note: Tagout only may be used only if the equipment is not capable of being locked out AND tagging out alone is as effective as lockout tagout would have been. Other control measures may be used in addition.

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SP241: LIFTING AND MECHANICAL HANDLING

1.1 Introduction

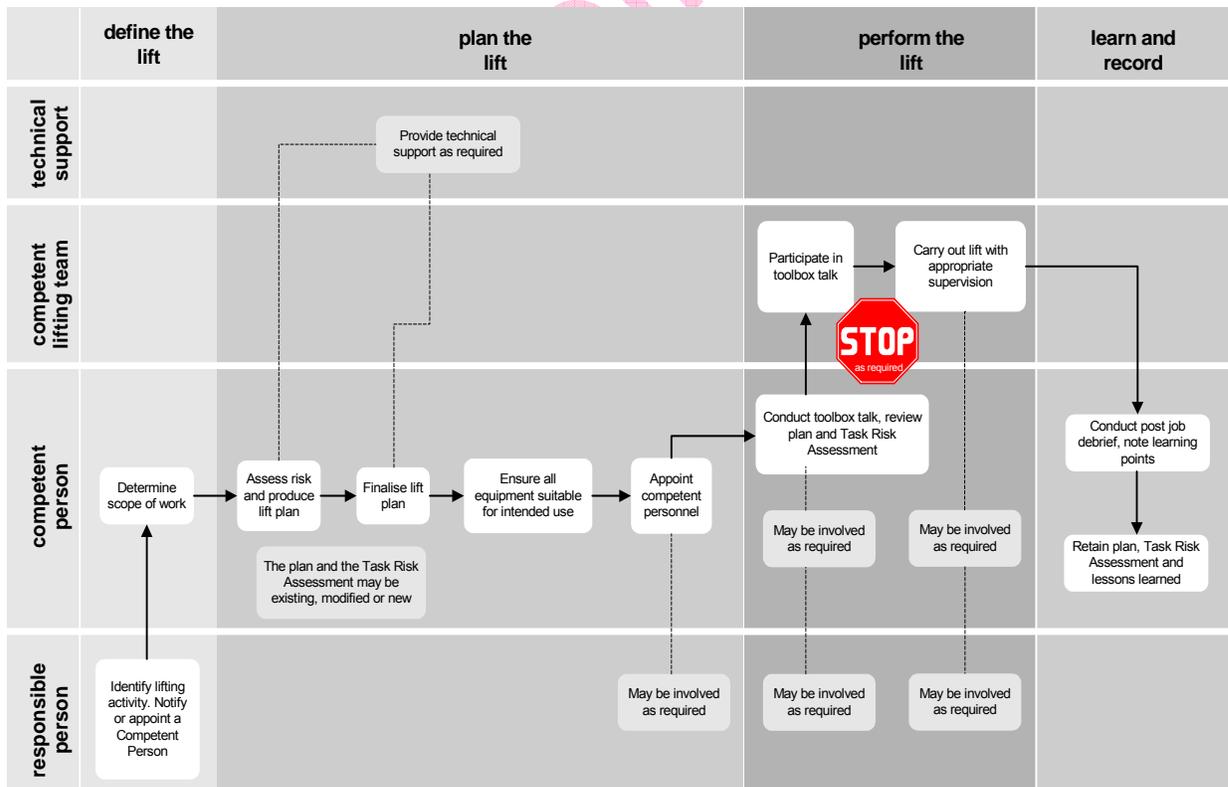
Items being lifted or mechanically handled have the potential to cause serious injury or damage. This Safety Procedure aims to provide a structured approach to ensure that lifting and mechanical handling operations are planned and carried out safely. Due consideration shall be given to the following aspects:

- All lifting operations should be planned and controlled by competent persons
- Ensure that competent crane operator, banksman and load handler are available
- Ensure that all lifting equipment is sufficiently strong, stable and suitable for the proposed use, and is correctly marked and certified
- Ensure that a lift plan is in place
- Undertake a Risk Assessment and a Toolbox Talk prior to any lifting operation
- The lift area shall be free from obstructions, other possible hazards and unauthorised personnel
- Check the load is ready for lifting (e.g. correct sling connected, sea fastenings disconnected, etc)
- Good communication must be maintained at all times
- Lift operations must cease immediately should any complications or deviations occur

1.2 Planning of Lifting Operations

1.2.1 Overview

The following flow chart details the steps responsible persons shall take during lifting operations:



1.2.2 Responsibilities

Responsible Person: The person who has overall responsibilities for work activities. The Responsible Person recognises, or is advised of, the need for a lifting activity and either notifies the Competent Person or appoints a Competent Person to plan the lifting operation.

Competent Person: Someone who has the required level of competency to plan and supervise lifting operations. He must have the practical skills, theoretical knowledge and the ability to carry out risk assessments, produce and assess lift plans and conduct toolbox talks. He may or may not supervise the lift, but is the focal point for technical aspects of the lift.

Competent Lifting Team: Each team member has the responsibility to know and work within their own competency to complete the task. They are required to attend and participate in toolbox talks, carry out pre-use inspections of lifting equipment and so stop any operation when they are concerned about any aspect of health and safety.

Technical Support: Those providing technical support must be technically competent in the area of expertise upon which they are requested to advise.

Banksman: Person positioned with unrestricted view giving instructions to crane operator when sight lines are obstructed.

Load Handler: Person responsible for attaching, detaching and securing load.

1.2.3 The Lift Plan

When a lift or a series of lifts is to be undertaken a Lift Plan, which includes a Risk Assessment (See SP404) and a Toolbox Talk (See SP403) must be undertaken. These must be documented, communicated and a copy of each stored appropriately in the contract folder. The Lift Plan is intended to clearly identify the Competent Person planning the lift, the lifting operation to which it relates, step by step instructions for carrying out the lift, the equipment required and the activity assigned to each person. The Lift Plan must be checked and authorised prior to implementation.

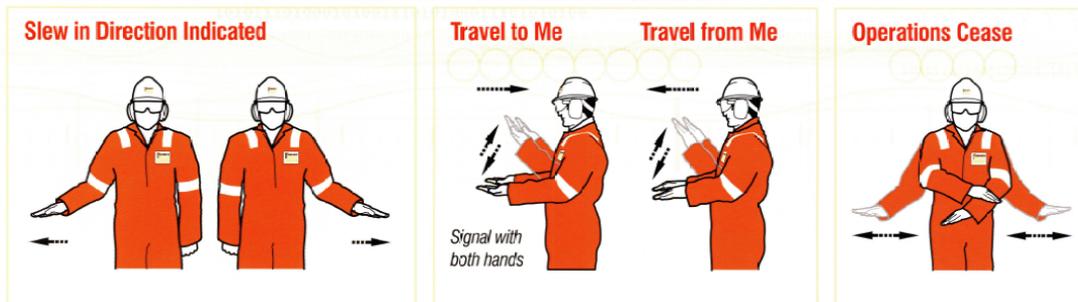
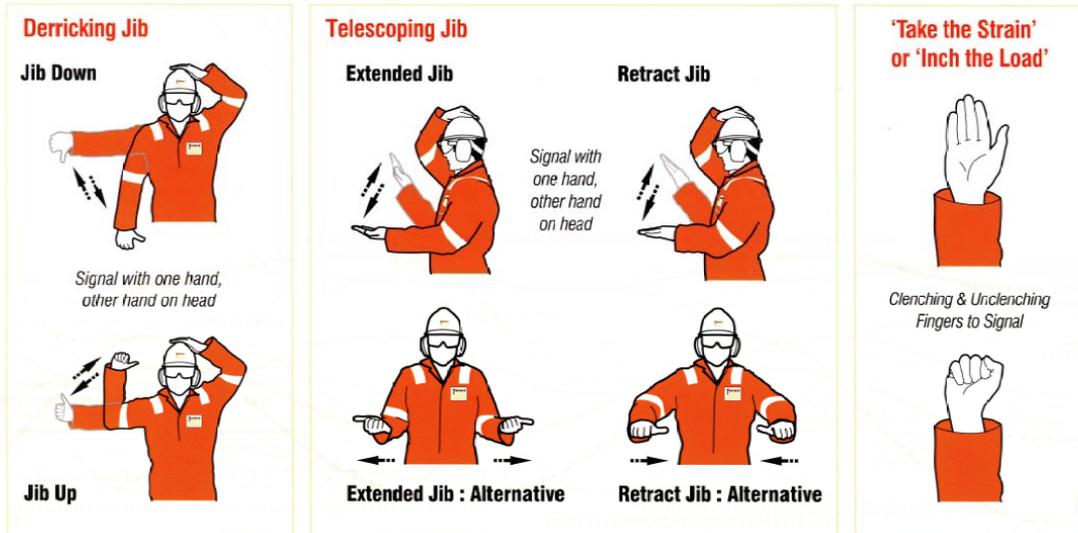
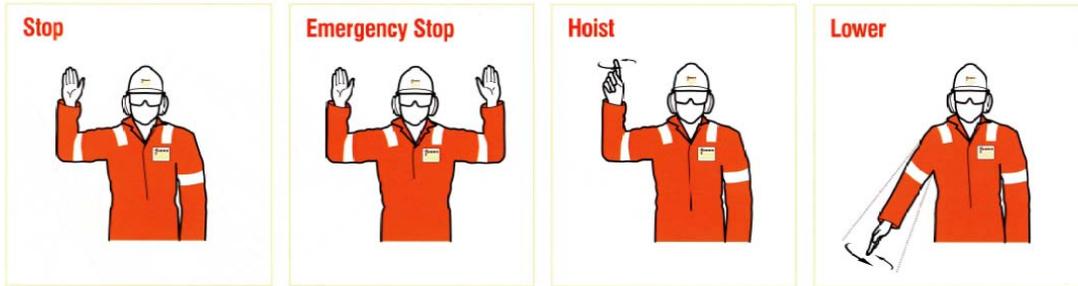
Use this Safety Procedure to assist with completion of SP404. If a more detailed Risk Assessment is required, use SP228 as a guide and SP401 to create the record. When carrying out the Risk Assessment, SP404 shows a list of possible factors to be considered. The list is not exhaustive, as individual circumstances may present other or additional hazards and related risks, which should also be mitigated as far as is reasonably practicable:

- Ensure that the weight and type of load is known prior to selecting a suitable lifting apparatus
- Lifting capacities are generally expressed for given horizontal distance between the pedestal of the crane and the load. This distance must be measured to ensure that there is sufficient lifting capacity. Any dynamic loading factor should also be considered
- There must be no loose items on the load that could fall. If there are no proper lifting points, additional lifting equipment shall be utilised. Taglines are of great importance when lifting at sea.
- Environmental conditions, including sea state, wind speed, precipitation, lighting, visibility etc should be taken into consideration when planning for the lift. (See SP235, 1.4 for a guide.)
- It is inadvisable for one person to take on more than one task. As a minimum, a crane operator, a banksman and a man for each tag line shall be available.
- Users shall check all equipment prior to use
- A signalling strategy shall be adopted that is understood by the entire team. Only one person shall be responsible for signalling, except in the case of the requirement for an emergency stop, when all

personnel have the right and the responsibility to make this signal. The following are the Fugro universally accepted hand signals, although others are also accepted:



Recommended Hand Signals for Crane Operations



- The banksman shall be able to see the entire lifting operation and have visible contact with the crane operator. If this is not possible, radio communications shall be used
- If the crane itself moving (e.g. on a ship at sea) or if the load is to be lifted through the wave zone, or out of the water, etc., then an extra dynamic load shall be applied to the lifting apparatus. A dynamic load factor of at least 1.3 (i.e. the load should be considered to be 1.3 times its static weight) is appropriate for general work at sea in reasonable conditions; more if conditions are more severe.
- All unnecessary or conflicting tasks, obstacles and persons not involved in the lifting process shall be removed or denied access to the area. Personnel shall be kept clear of suspended loads, and, if possible, behind protective barriers, if this does not compromise the line of sight, etc. Be aware of overhead obstructions
- Release all sea-fastenings, etc if appropriate
- Keep the pendulum effect minimised by shortening the distance between the crane jib and load
- PPE shall be appropriate to the task, as described in SP230. Remember that PPE is not the first mitigation measure that should be considered
- Loads with awkward shapes, sizes, composition or sharp edges may need additional thought
- Ensure that all personnel understand the tasks required of them, that they can communicate effectively (especially where spoken language is not common amongst the team members), that they know who is in charge and that they will abide by that person's authority
- Ensure that the laydown area is adequate in terms of strength, size, conditions etc and that the load, once placed is secure and adequately protected
- Always consider escape routes and emergency plans

1.3 Performing the Lift

Once the lift plan has been approved, the Competent Person will hold a Toolbox Talk and record it using SP403. The Toolbox Talk shall be held among all the appointed personnel involved in carrying out the lift. At the Toolbox Talk, individual responsibilities shall be allocated, including the identification of who will be in charge of the lifting operation. In addition, all personnel will review the findings of the Risk Assessment and the Lift Plan and discuss these step by step to ensure that everyone clearly understands and agrees with the methods and control measures to be used. If, after discussion, there is an agreed change to the Risk Assessment and or the Lift Plan, the Competent Person will amend the documentation and have it approved.

The lifting operation shall be carried out according to the Lift Plan. It is important that the lifting equipment is only used in accordance with the manufacturer's operating instructions and reference should be made to them.

1.4 Learn and Record

After completing the lift, persons involved in the lift shall have the opportunity to comment on the lift and recommend possible improvements for subsequent consideration. These recommendations shall be recorded on the Lift Plan and shall further be discussed at Post-Site Debrief and or brought to the attention of the Line Manager or HSE Representative.

SP321: FIRE SAFETY

1.1 Policy

We are a responsible employer and take our fire safety duties seriously. For this reason we have formulated this policy to help us comply with the FSO. In compliance with the FSO we will adopt a risk assessment based approach to managing fire safety within our premises. Based on the findings of the fire risk assessment (FRA) we will also create an emergency action plan, which provides explicit guidance to all staff and visitors to ensure that in the event of a fire our premises are safely evacuated.

It is the responsibility of the local HSE Representative to ensure that this procedure is adhered to and that the required records are maintained.

1.2 Training

All employees shall receive Induction Training on joining the Company, which shall include Fire and Emergency Procedures. Ongoing training shall be provided to ensure that personnel are fully aware of the action to be taken in the event of fire.

The Offices shall hold fire evacuation drills every six months in order to test the procedure and make amendments if deemed necessary.

1.3 Fire Wardens

Fugro GEOS shall appoint nominated personnel as Fire Wardens with designated 'check' areas. Each Fire Warden shall be issued with a 'Day-Glo' jacket for immediate recognition in an emergency event.

Each Fire Warden shall receive initial training as soon as possible on appointment on the use of fire extinguishers and fire safety procedures. Re-training shall take place at intervals as required by law (usually annually).

1.4 Fire Prevention Rules

Three things are necessary to ignite or sustain a fire:

- Fuel
- Heat
- Air.

The objective of fire prevention (and control) is to keep these apart. If any one of these can be eliminated the fire will be prevented or extinguished.

The following good housekeeping rules should be adhered to (where applicable) in each office:

- As stated in the Quality Manual, Fugro GEOS operates a "Clean Desk" policy for both security and fire prevention. Files, paperwork and equipment should not be stacked on the floor, under or on

desks. All desks should be cleared of all paperwork and files returned to their correct location within the filing system at the end of each working day.

- Where used, individual paper re-cycle bins located under/on desks should not be allowed to overflow and should be emptied weekly, or more often if required, into the re-cycle bins located around the office.
- Keep all parts of the office clear of waste and rubbish. It is the responsibility of all employees to clear any waste they have caused and to ensure that communal areas such as photocopying rooms and the tops of filing cabinets are kept clear. In particular do not leave rubbish under stairways or in plant rooms.
- Fugro GEOS recognises smoking as both a serious health hazard and a significant cause of fires.
- While on Company premises, employees shall obey the Company's No Smoking policy and observe all No Smoking signs.
- All electrical equipment must be correctly wired and cables laid such that they are not potential trip hazards, since tripping on cables could lead to a short circuit.
- Do not overload electrical circuits – fuses are not infallible. If a fuse blows first find the cause, rectify the problem and then replace it with the correct fuse.
- Do not use any form of supplementary heating in offices unless of an approved kind. Electric element heaters must be adequately protected and must not be used for drying clothing, etc.
- Take great care when handling any flammable materials. Do not smoke. Ensure there is adequate ventilation.
- Personnel working in the workshops must ensure that their work does not constitute a fire risk. Activities such as grinding and flame cutting must not be carried out near flammable material. Clean up all oil spills.
- At the end of the working day switch off all electrical appliances that are not required to work overnight and disconnect from the mains.
- Do not prop fire or smoke doors open – they only work when closed.

1.5 Fire Fighting Equipment

Fire fighting equipment shall be provided, which shall meet any standards and/or regulations applicable to the premises. All fire extinguishers shall be located in highly visible positions and shall not be obstructed. They should not be removed from their mountings except in the event of a fire.

Fire fighting equipment shall be checked on a regular basis (maximum interval of one year) as recommended by the manufacturers or as required by law. Checks shall be completed by an approved sub-contractor and inspection records shall be maintained.

1.6 Emergency Lighting

All emergency lighting in the office shall be checked on an annual basis in accordance with manufacturer's recommendations and records shall be maintained.

1.7 Fire Alarms

Fire alarms shall be tested monthly in accordance with manufacturer's instructions and records shall be maintained.

1.8 Fire Evacuation

A Fire Evacuation procedure shall be displayed on all appropriate notice boards and at emergency call points in each office. Read this carefully. If visiting other Fugro GEOS offices, be aware that the procedure may be different.

Fire routes shall be clearly marked in each office. It is each employee's responsibility to be familiar with these exit routes and if in doubt, consult a Fire Warden.

Evacuate to the muster point in a calm and orderly manner ensuring that all personnel are aware of the emergency. At the muster point, a nominated person shall take a roll call or use the fire zone board, making sure that the fire wardens have checked all of the zones. Any visitors are to be escorted by their host from the building to the muster point and marked off in the visitor's book.

1.9 Fire Drills

Fire drills shall be carried out periodically in each office, usually every six months. These will be organised by the local HSE Representative or Facilities Manager, who is also responsible for maintaining the records, including the time taken to complete the evacuation.

A strict procedure shall be established in each office for logging visitors in and out. Visitors shall include all employees visiting from other Fugro GEOS offices or other Fugro companies. The visitor's book shall be available for the roll call. Employees must take responsibility of any visitors they are hosting.

1.10 Fire Control

If a fire occurs the immediate action is to operate the nearest fire alarm point, ensure that main switchboard is informed and that the emergency services are called.

Only attempt to fight a fire if it is practicable and if fire extinguisher training has been received. Extinguishers are designed for the first/early stages and cannot be expected to cope with an established fire. Always fight the fire with an exit at your back and make sure it is clear. If possible, have a second person present. If it is not practical to fight the fire, GET OUT AND STAY OUT.

Each office is provided with a number of fire extinguishers, whose type and location have been determined in consultation with the local Fire Protection Department. Be familiar with those closest to your work location.

Fires are classified into four types and extinguishers must only be used on those types of fires for which they are designed.

Classes of Fire:

- Class A:** Solid and carbonaceous and generally burn leaving an ash, such as paper, wood, cloth.
- Class B:** Flammable liquids, such as petrol, oil and paint, and include some solids that melt when heated, such as wax, grease and cooking fat.
- Class C:** Flammable gases, such as butane, propane and methane.
- Class D:** Flammable metals, such as magnesium and lithium.

Note that a fire involving electricity can occur in any of these classes.

TYPE	COLOUR	CLASS OF FIRE				ELECTRICAL
		A	B	C	D	
Water	Red	Yes	No	No	No	No
Foam	Cream	Yes	Yes	Yes	No	No
Dry Powder	Blue	Yes	Best For	Yes	Yes	Yes
CO ²	Black	Yes	Yes	Yes	Yes	Best For
Halon	Green	Yes	Yes	Yes	Yes	Yes
Fire Blanket	-	Yes ¹	Yes ¹	No	No	No
Fire Hose	-	Yes	No	No	No	No

Fire extinguishers are either coloured as above or are red with a label of the appropriate colour.

Any fire, however small, must be reported to the local HSE Representative and/or HSE Manager. If a fire extinguisher has been used, it is to be removed from service until it has been re-charged and checked. The local HSE Representative is responsible for ensuring this is done promptly.

The above notes are for guidance only and must not be considered a substitute for proper training. New staff members must be given a safety briefing as part of their initial induction, which must include basic fire instruction.

¹ Small fires only

1.11 Records

Each office is required to keep records relating to fire procedures and tests, and these should include:

- Records of regular fire bell checks where carried out by Fugro GEOS personnel.
- Records of fire practices including the time taken for evacuation.
- Records of any fires or potential fire incident documented on an HSE Incident Form.
- Maintenance records for fire extinguishers and fire alarm systems.
- Details of the fire certificate if required.
- Copies of internal safety audits of the fire precautions (United Kingdom only to comply with the Regulatory Reform (Fire Safety) Order 2005) .
- A site plan.
- Relevant correspondence with local authorities and/or landlord.

1.12 Fire Wardens - Wallingford

The role of the Fire Warden is integral to the overall Fire Procedure for the Wallingford office. It is to ensure that in the event of a fire or fire drill all personnel in a designated area of the building evacuate the premises quickly and safely. In addition, the Fire Warden is responsible for fire prevention in this designated area on a day-to-day basis.

When the fire alarm sounds, the duties of the Fire Warden are as follows:

- Put on your Day-Glo jacket to identify your role.
- Take control of the evacuation of your designated area.
- Inform everyone to stop work immediately, do not collect belongings, proceed to the nearest available exit and report to the fire assembly point.
- Check your area is clear, including any subsidiary designated areas such as toilets, are clear.
- Shut windows and turn off all electrical equipment ONLY IF PRACTICAL TO DO SO. Close doors on exiting premises.
- Report to the Roll Caller that your area is clear.
- Do not allow any person to re-enter the building until either the Fire Brigade or Roll Caller gives permission.

Fire Fighting:

Only attempt to fight a small fire, in a waste paper bin for example, if you are confident it can be extinguished using only one extinguisher. If you have any doubts do not start. If by performing any of duties you risk placing yourself in danger do not proceed, simply make your escape from the premises, report to the Roll Caller and inform him/her of your actions.

SP322: OFFICE HOUSEKEEPING

1.1 Introduction

All Fugro GEOS employees spend time in offices and whilst these appear much safer places than work sites, a significant proportion of reported minor accidents occur in offices. Forethought and a conscious attitude to safety can avoid most of these. This procedure covers some of the main hazards in the office environment and provides advice on how to eliminate or avoid them.

1.2 Hazards

The following list provides examples of how office safety can be improved. It is not exhaustive and common sense should be used.

- Keep the office clean and tidy - untidiness has a demoralising effect as well as presenting trip, slip fall and fire hazards.
- Fire exits, aisles and stairways must be kept clear of stored material or obstructions of any kind.
- Do not run in the offices - walk and look where you are going.
- Ensure that there is no one on the other side of doors before opening them - use the vision panels provided. Be aware of the risk to you when approaching doors.
- Only use office furniture in the way for which it was designed. For example, do not stand on swivel chairs. Ensure that furniture is safe - report any damage noted to chairs, desks, tables etc. Avoid placing furniture such that its corners constitute a hazard.
- Ensure that filing cabinets have anti-tilt devices, are secured to walls or are designed such that only one drawer can be opened at a time. Do not overfill cabinets and, wherever possible, fill lower drawers first. Close all drawers after use.
- Be aware of hazards, such as loose stair treads, damaged handrails, frayed or crushed electrical leads, etc. Ensure that telephone or electrical cables are stowed away and are not a potential trip hazard. Report any potential hazards to the HSE Representative.
- Where temporary obstructions (such as maintenance ladders) are unavoidable it is desirable to set up some form of barrier. No obstructions of this kind are permitted in fire exit routes unless alternative exits have been clearly marked.
- When lifting items, use the correct procedure (refer to SP229). Stack materials such as boxes of paper carefully, adopting any recommendations on stack heights given on the boxes.
- Take care when carrying hot liquids - use a tray.
- Take care when using sharp tools such as scalpels and scissors. Use proper holders that support blades against snapping as well as protecting the hands and store them safely.
- Dispose of any sharp items such as blades carefully, wrapping them before placing in a bin.
- Never use electrical equipment with faulty wiring – get it checked before use. Switch off and unplug equipment when not in use.
- Ensure there is adequate ventilation in the work area.
- Know where the First Aid points are and who are the First Aiders.

SP323: OFFICE ELECTRICAL EQUIPMENT

1.1 Introduction

This procedure is intended to provide general guidance for the safe operation of electrical equipment used during normal work activities. For the operation of individual units, manufacturer's instructions should always be consulted. If in any doubt, seek advice from the manufacturer or the HSE Representative before plugging the device in.

1.2 Typical Faults

Electrical accidents can result in shock, serious burns and/or fire. Reflex reactions to a mild shock can cause a person to injure themselves or their colleagues. Electric shock can be received in two ways: *Direct Contact* by coming into contact with live parts of the equipment which should not normally be exposed, and by *Indirect Contact* where a normally exposed part of the equipment has become live due to a fault.

The most common dangerous faults giving rise to accidents are detailed below:

Plugs:

- Many accidents involve badly fitted or broken plugs.
- If the cord grip on a standard UK plug has not been correctly tightened, the wires in the plug may be pulled from the terminals. If the earth wire is pulled loose, it only requires one strand of this wire to touch the live terminal or fuse for the equipment to become live.
- If more than one piece of equipment is wired into a plug, the plug cover cannot be properly attached, the terminal connections may be overcrowded or the cord-grip may be unusable. Each of these situations is hazardous.
- When plugs are broken or equipment fittings are not compatible, it is tempting to make dangerous ad-hoc connections, e.g. by poking cable ends into plug sockets.
- If fuses are used of a rating higher than recommended for the protection of equipment, there is a danger that under fault conditions they will not blow quickly enough (or even at all) to protect the operator from injury.

Cable Extension Leads:

- Extension leads are often used across gangways where heavy footwear, trolleys, etc damage the cable exposing the conductors. Instead of carrying out a safe repair, the damaged cable is simply taped up. This will not give adequate electrical insulation and may result in conductors shorting and the cable becoming live.
- Leads are joined by twisting the ends of wire together and wrapping them in insulation tape. It is inevitable that the joint will eventually separate causing a serious hazard.

Electrical Equipment:

- If protective sleeving is not used where the flex enters the equipment, it may eventually chafe exposing the conductors, which touch the chassis rendering the unit live.
- The removal of guards and ventilation grills for servicing may mean live components can be touched.

- Faulty switches are shorted out so that the unit can only be switched on/off at the mains socket.

1.3 Equipment Maintenance/Testing

Under the UK Electricity at Work Regulations 1989 owners, directors, managers and, in some instances, operators are responsible for electrical safety in the workplace. The regulations require that checks of all the electrical equipment are conducted at regular intervals using a Portable Appliance Tester. The Wallingford Engineering Manager, or his designated representative, is responsible for ensuring that all electrical equipment is PAT tested annually and records maintained of these tests.

The use of personal electrical items in the Company is discouraged. Any personal equipment must be PAT tested before use.

1.4 Site Equipment

The general good practice described applies equally to site equipment. However, as required safety precautions may vary from site to site and from equipment to equipment, any specific concerns regarding the use of this equipment should be addressed to the Wallingford Engineering Manager.

1.5 Do's and Don'ts

This section details the precautions to be taken by all staff when dealing with all electrical equipment in Fugro GEOS' offices.

DO:

- Before buying any electrical item check that it meets the appropriate British Standard on Electrical Safety (or equivalent overseas standard). Seek advice from the Wallingford Engineering Manager if an item does not, for good reason, meet the standard.
- Use all electrical appliances according to the manufacturer's instructions.
- Ensure that wiring, repair and maintenance is only carried out by a competent and authorised person.
- Visually inspect equipment for any signs of wear or damage before using it.
- Switch off and unplug equipment at the mains and seek expert advice if you have any doubt about the condition of an electrical appliance.
- Report any damage to electrical units, plugs, cables and switches to the Wallingford Engineering Manager or his designated representative.
- Always arrange cables to prevent creating a trip hazard and uncoil extension leads to prevent the cable from heating and damaging the insulation.
- Place electrical heaters on level floors and in a safe position, e.g. not close to paper, furniture etc, or where they may be knocked over. Convector heaters are preferable to radiant and should be properly wired and fused correctly.
- Place fans on a firm base and ensure that they are fitted with approved guards over moving parts. Ensure there are no obstructions to the movement of the fan unit.
- Ensure that circuit breakers are used when operating power tools such as drills.
- Switch off electrical items when not in use and unplug from the supply except for those that require to be powered continuously.

- Switch off and unplug units before making changes/adjustments such as changing drill bits, cutter blades etc.

DO NOT:

- Use electrical items near water or where liquids may be split unless they are specific waterproof units. Be particularly careful when handling drinks near them.
- Leave radiant heaters on unattended. No items of clothing should be placed on or near electric heaters to dry.
- Overload circuits - fuses are not infallible. Be particularly careful when using multi-socket extension leads not to exceed the current rating.
- Bring any personal items of electrical equipment into the offices without the approval of the Wallingford Engineering Manager or his designated representative.

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SP324: WORKSHOPS & STORES

1.1 Responsibilities

This procedure establishes the Company's policy for dealing with the Health and Safety hazards within the workshop and associated stores. All staff working in or visiting these areas must abide by these requirements. The Wallingford Engineering Manager or the senior workshop employee in other offices is responsible for ensuring these procedures are followed.

The following health and safety areas are covered within this procedure:

- General sources of risk and control measures.
- Electrical equipment.
- Laboratory pressure and vacuum systems.
- Water.
- Handling, preparing, storage and testing samples and substances.
- Additional requirements for handling preparing, storage and testing samples which may be contaminated.
- Chemical and LPG storage.

1.2 General Workshop Procedures

The workshop and stores contain items, substances and situations that are potentially dangerous. The following general procedures apply to all workshop environments.

- The workshop and stores areas must be kept tidy. Stores and equipment must not be allowed to obstruct the 'Clear Gangway' corridors (marked by yellow lines on the floor) access gangways, fire exits, doors etc.
- All staff must behave in a properly in these areas. No horseplay will be tolerated. Walk, do not run.
- Be careful when carrying glassware, heavy, sharp or unwieldy items.
- PPE should be worn as appropriate.

It is impractical to ban non-workshop personnel from the stores. However, the area is to be used only by those employees with reasonable reason for access. Non-employees are not allowed in the workshop or stores areas unless visiting for a specific purpose and escorted by a member of staff.

Only members of staff who have successfully attended approved courses and hold current forklift operator certificates may operate the forklift truck.

Broken glassware and other sharp waste must be disposed of safely, either in special marked containers for such waste or well-wrapped in paper, boxed and marked to protect waste disposal operators.

Heavy electrical or welding equipment, or cutting and grinding tools may only be operated by competent personnel, under the authority of the Engineering Manager.

1.3 Electrical Equipment Procedures

These guidelines supplement the general procedures stated in SP322, Office Housekeeping and are directed at workshop operations.

A sufficient number of electrical power sockets must be made available and conveniently accessible to enable all electrical apparatus in regular use to be operated simultaneously without using extension leads and/or adapter plugs. Extension leads may, however, be used with portable apparatus (e.g. hand tools) provided that the cable is capable of carrying the maximum current required by the unit connected to it.

Mains isolating switches for fixed apparatus, such as lathes or grinders, etc must be clearly marked and located such that they can be operated without reaching over the apparatus.

Only an approved electrical contractor or other similar qualified and competent person shall carry out electrical maintenance, installation and repairs.

Portable electrical equipment should be marked with its standard operating voltage (115V/240V, etc).

1.4 Compressed Air Equipment Procedures

Any equipment using or producing air or water under pressure or air under vacuum must be regularly tested in accordance with manufacturers' recommendations. The supplier should undertake this and issue test certificates with the equipment.

Compressed air, whether bottled or from a compressor, must not be directed at any person or used for cleaning clothing. If directed on to the skin at close range air can penetrate into the blood stream with possible fatal results.

Where any apparatus uses compressed gases the correct regulators compatible with the type of gas and the apparatus must be used. Similarly, any flexible tubing between the apparatus and regulator must be compatible with the type of gas and pressures involved.

1.5 Water

Drinking water supplies should be from a tap connected directly to mains (not feeder tank), clearly identified for that purpose and located away from workshop benches. Other taps should be marked as not suitable for drinking. Good housekeeping is essential around sinks and taps. Free water on floors makes them very slippery.

Water pipes must not be used for providing an electrical earth point for apparatus although it is recognised that these pipes may be earth-bonded to the principal earth point at the mains terminal.

Electrical apparatus must not be used in or immediately adjacent to water unless that apparatus is specifically designed and constructed for such use.

1.6 General Sources of Risk & Control Measures

General sources of risk to health and safety are those activities likely to give rise to gas, dust, skin contact, eye contact, risk of objects dropping on to or striking feet and ingestion. In order to provide control and preventative measures the following measures shall be applied:

1.6.1 General

Visitors to the workshop may be required to wear protective clothing at the discretion of the Engineering Manager.

1.6.2 Coveralls & Safety Shoes

To prevent contamination of clothing, no loose clothing (and preferably coveralls or boiler suits) should be worn when working in the workshop or stores areas. Coveralls should be properly fastened.

Coveralls or boiler suits must be changed and cleaned regularly. If they become badly soiled by oils, chemicals or contaminated material, garments should be laundered separately from other clothing. In extreme cases the items should be disposed of in a safe manner.

Hard hats, safety shoes or boots may be required for certain activities.

Visitors to the workshop will not normally be required to wear safety footwear but may be prohibited from certain areas of the stores.

1.6.3 Eye Protection

To prevent eye injuries, safety glasses must always be worn when working with or near chemicals, or when grinding, cutting or drilling. Full tinted facemasks should be worn when welding.

Any activity producing dust must be carried out, where possible, in a well-ventilated area.

1.6.4 Gloves & Ear Protection

Gloves must be worn when handling harmful chemicals or when protection is otherwise required.

Suitable ear protectors must be worn when conducting any operation generating a noise level of 85dB(A) or more.

1.6.5 Eating, Drinking & Smoking

Smoking is not allowed on Company premises.

Before eating or drinking wash hands thoroughly using soap and water.

1.6.6 Personal Hygiene & Health

The wide range of activities involved in a workshop or stores requires staff to adopt a high level of personal hygiene. Certain substances are known to be carcinogens and, therefore, prolonged contact should be avoided. Similarly other substances such as solvents, oils, some alkalis and acids can cause occupational dermatitis.

Barrier creams are recommended when working with products likely to have an irritant effect on the skin and absorption of product into the skin tissue. Various creams are available and the manufacturer's instructions on suitability and use should be followed.

Staff should observe the following:

- Wear protective clothing.
- Use ventilation equipment where provided.
- Change clothing regularly to avoid soiling.
- Do not put contaminated rags etc into trouser pockets.
- Get first aid treatment for all cuts and grazes however slight.
- Do not let any product harden on skin - remove it immediately.
- Whenever work stops, hands and face and other exposed skin should be washed thoroughly with soap and water.
- Do not use abrasives or solvents to clean skin.
- Report any skin disorders that may develop to the Engineering Manager.
- Staff known to suffer from eczema or allergic rashes should report this to the Engineering Manager who will assign work without risk to skin.
- Use barrier cream where appropriate.
- Hands should be washed before as well as after using the toilet.

1.6.7 Training

For each person using specialist tools, training must include:

- Carefully read the documented work procedure (where appropriate) and other specifications and ensure these are fully understood.
- Read and understand the appropriated Fugro GEOS HSE Procedures relevant to the task.
- Read carefully the information for every chemical or substance used in the workshop tasks.

The Engineering Manager must ensure that this has been completed and must ensure that the person concerned understands the risks and control measures before the training record is signed.

SP325: WORKSTATIONS & VDU'S

1.1 Responsibilities

This procedure defines the Company's policy for dealing with the Health and Safety hazards associated with employees workstations and the use of visual display units (VDU's). All staff using a PC-based workstation should read and abide by these requirements. The Managing Director is responsible for ensuring these procedures are adhered to, but it is in every employee's interest to maximise their own comfort when at their workstation.

1.2 Requirements

Many employees spend most of their day at a PC workstation. This has the potential for several sources of injury, through incorrect posture, repetitive actions, and incorrect placement of VDU's, desktop equipment, files and other routinely used items. Consequently, a poorly designed workstation can lead to excess time off for sickness or illness.

Potential injuries or hazards are as follows:

- Back, shoulder and neck pain.
- Headaches.
- Wrist sprain.
- Poor circulation.
- Eye strain.
- Fatigue.
- Stress.

1.2.1 Workstation

Comfort while working at a workstation should be optimised, thereby reducing the potential for strains and pains. The following should be addressed:

Posture

- Seating should be comfortable and height adjustable, with the backrest height adjustable. Most support should be given to the lower back.
- Feet should rest flat on the floor, with the thigh/lower leg angle at 90°. Use a footrest if necessary.
- The seat should encourage employees to sit upright, not slouch, improving circulation and lowering the potential for back, neck and shoulder pain.

Desktop

- Arrange the desktop so those regularly used items are within immediate reach. Lesser used items should be in the next field of reach.
- Regularly used files should be within easy reach, particularly if heavy, reducing the need to stretch.
- Items should be arranged so as to reduce repetitive twisting, reaching or bending.
- Desktops should be kept clear of clutter, enabling items to be found without undue stress.

- Chairs should be adjusted so that elbows are at right angles to the surface when writing, resting or otherwise working.

Location

- Ensure there is sufficient room to manoeuvre from the seating position, without being cramped by gangways, filing cabinets, bookshelves, etc.
- Locations should be free of draughts, glare and personnel traffic.

Visual Display Units

Continuous viewing of a VDU can cause eyestrain, headaches and unnecessary stress. The following precautions should be taken to reduce potential stress or illness:

- The optimum level for the top of the VDU screen is at eye level.
- VDU's should be angled upward to meet the users line of sight at a 30°-60° angle.
- Ensure the VDU screen is correctly focused.
- Do not use bright screen colours, as these are harsh on the eyes.
- Use text sizes comfortable for viewing.
- When copy typing, ideally have the hardcopy text between the user and VDU, or adjacent to the VDU. If possible, the hardcopy text should be directly in front of the user, with the VDU slightly angled to one side.
- Avoid glare from windows, lights or reflective surfaces falling on the screen.
- The optimum distance between the user and the screen is 300mm–700mm.
- Take regular breaks, carrying out other tasks that do not require continued viewing of a screen.
- There should be minimum lighting contrast, e.g. do not directly face an outside window.
- There is no maximum time limit set down for using a VDU screen without a break. The time limit is dependent on the intensity of the VDU work being undertaken.

SP326: PRINTING FACILITIES

1.1 Introduction

This procedure defines the Company's policy for dealing with the Health and Safety hazards associated with using the printing, binding and photocopying facilities. All staff working in or visiting these areas must abide by these requirements. The Managing Director is responsible for ensuring these procedures are adhered to.

1.2 Requirements

When operating or carrying out routine tasks on equipment, always follow the manufacturer's instructions and guidelines. The following sections detail specific important points.

1.2.1 Photocopiers

- Always ensure that photocopiers are switched off when not in use for extended periods, such as overnight and at weekends. Be aware of specific manufacturers' recommendations.
- Be aware of the location of the emergency power shut off on the machine or wall.
- Photocopiers emit fumes and fine dust particles, so observe warnings regarding ventilation and fire risks. Ensure that photocopiers are located in well-ventilated areas.
- Photocopier toner is harmful if inhaled. Take care to avoid spillage's when replacing toner cartridges. If a spillage does occur, be careful not to create a dust cloud when cleaning it up. Where possible, spillages should be vacuumed as opposed to being swept up.
- Where appropriate, protective clothing such as gloves and overalls should be worn to prevent clothing from becoming contaminated and stained with toner and dust. If toner gets on the hands, always wash it off with COLD water. DO NOT use hot water, as this will fuse the ink to the skin.
- In the event of a malfunction such as a paper jam, follow the manufacturer's instructions carefully and take care when touching surfaces that may be very hot. There are usually a limited number of actions that the operator may take to try to clear the problem. Do not be tempted to go beyond those actions specified in the manufacturer's documentation. If in any doubt check with a competent member of staff and/or call out a service engineer.

1.2.2 Punches/Drills/Guillotines

- All machines should be fitted with proper guards and fail-safe mechanisms. DO NOT TAMPER WITH THESE. Ensure that all guards are in place when operating the machine.
- Switch off all electrical devices at the mains before attempting to clear any jams.
- Even where safety guards are fitted take care to keep hands clear of potential hazards.
- Keep the equipment properly maintained and regularly clear away cuttings to avoid blockages and a potential fire risk.
- Beware of sharp edges (guillotines).
- A competent staff member must show inexperienced personnel how to operate such machines.

1.2.3 Laminator

- Laminators must be switched off immediately after use, since they contain a heater that, if left on, could start a fire.
- Keep hands well clear of the heated roller.

1.2.4 General Operations

- Great care must be taken in handling boxes of paper etc. Reduce the amount of lifting to a minimum by adopting efficient systems of work and by storing heavy items at comfortable levels.
- Where possible use mechanical aids such as trolleys to assist the transport and lifting of heavy items.
- Heavy boxes should only be lifted by physically able personnel, who are able to do so without straining. Always remember to keep your back straight when lifting.
- Ensure that you can see where you are going.
- Seek help with unwieldy or heavy items. Do not attempt to move them on your own.
- Ensure that the printing area is kept clean and tidy and that all waste paper is disposed of without constituting a fire risk.
- Ensure that all cables are stowed away safely so that they do not present a trip hazard.

SP327: HSE MEETINGS

1.1 Responsibilities

This procedure applies to all Company workplaces and details how HSE Meetings shall be conducted and their frequency. It shall be the responsibility of the Managing Director to ensure that this procedure is carried out. It shall be the responsibility of the following individuals to organise the meetings as specified. It is the responsibility of the individual named in the minutes to ensure that the Action Points are completed and documented within the specified timescale. Monitoring and measuring may be carried out.

- HSE Committee HSE Manager
- Offshore Incidents HSE Manager, in conjunction with Operations Managers
- Office Meetings HSE Representative.
- Vessel Meetings Party Chief.
- Other Fieldwork Project Manager.

1.2 Requirements

1.2.1 Frequency, Attendance and Agenda

The frequency and attendance of the HSE Meetings shall be as follows:

- | | | |
|-------------------------------------|-------------------------|----------------------------------|
| • HSE Committee | Every six months | HSE Committee Members |
| • Offshore Incidents | As required. | All available site staff |
| • Office Meetings | As required. | All available base-located staff |
| • Vessels or Other Field Operations | As required. | As appropriate |
| • Pre and Post site meetings | Pre and Post site visit | PM and Site Team |

With the exception of the HSE Committee and Office Meetings, a formal agenda is not required. However, the following items shall be addressed where appropriate:

- Minutes of previous meeting and outstanding actions.
- Review of HSE issues.
- Review of incident reports.
- Review of audits and associated corrective actions.
- Review of training needs.
- Any other business.

1.2.2 Minutes

Minutes of the meeting shall be prepared in an appropriate format by an attendee (normally the Chair or Secretary). The minutes shall include a summary of the actions required with responsible person and target dates for completion. The minutes shall be distributed and filed appropriately. In addition, minutes from all Office, HSE Committee and meetings concerning the Fugro GEOS group as a whole shall be posted on the noticeboard and copied to the HSE Manager in Wallingford.

SP329: CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH (COSHH)

1.1 Responsibilities

This procedure details the Company's policy for dealing with the Health and Safety hazards associated with exposure to substances hazardous to health and it shall apply to all activities under the control of the Company. It shall be the responsibility of the person in charge of each workplace to ensure that this procedure is carried out. For vessels this shall be the Party Chief in co-operation with the Master.

1.1.1 Company Responsibilities

- Carry out an assessment of any hazardous substances.
- Control any exposure to such substances.
- Monitor any exposure to hazardous substances.
- Conduct health surveillance, if applicable.
- Provision of information, instruction and training.
- If control measures are in place, ensure they are adhered to.

1.1.2 Employees Responsibilities

- Duty to make full and proper use of the control measures put in place by the Company.
- Report any fault or defect in the control system or Personal Protective Equipment provided.

1.2 Definitions

Substance

Any natural or artificial substance whether in solid or liquid form or in the form of a gas or vapour (including micro-organisms).

Substance Hazardous to Health

Any substance including any preparation which is:

- A substance that is very toxic, harmful, corrosive or an irritant as defined in the UK COSHH Regulations.
- A substance for which a maximum exposure limit has been defined or of which the Health & Safety Commission has approved an occupational exposure standard. (Health & Safety Executive document EH40).
- A biological agent.
- Dust of any kind, when present at a substantial concentration in air.
- Any other substance, which creates a hazard to health of any person which is comparable with the hazards created by substances mentioned above.

Maximum Exposure Limit (MEL)

The maximum exposure limit calculated by a method approved by the Health & Safety Commission.

Occupational Exposure Standard (OES)

The standard approved by the Health & Safety Commission for that substance in relation to the specified reference period when calculated by a method approved by the Health & Safety Commission.

1.3 Requirements

1.3.1 The COSHH Assessment

The COSHH assessment defines the inherent hazards associated with materials used and details all the precautions that must be taken to control the risk associated with their use. The Company shall not carry on any work that is liable to expose any employee to any substance hazardous to health unless a suitable assessment of the risks has been carried out.

1.3.2 Information Gathering & Risk Assessment

The workplace manager or responsible person shall carry out the following:

- Compiling a list of all substances hazardous to health used by the company.
- Obtaining Material Safety Data Sheets (MSDS) from the supplier or manufacturer of the substance.
- Considering the way in which the substance is used, i.e. quantities involved, length of time in use, method of application and area of application. Reference should be made to the MSDS information and the usage information to evaluate the risk.
- Conducting and documenting a risk assessment of those substances that are considered hazardous to health.

1.3.3 Controls Required

The controls put in place will specify the precautions that need to be taken to control the risks. For example:

- Eliminate the hazard.
- Substitute with a less hazardous alternative.
- Isolate the worker.
- Enclose the process.
- Ventilate the work areas using local extraction techniques.
- Forced ventilation, or general ventilation.
- Control work practices via job rotation.
- Ensure good housekeeping.
- Provide personal protective equipment.

Emphasis must be placed on the prevention of exposure to dangerous substances, but when this is not reasonably practicable, adequate controls must be put in place.

The Approved Code of Practice (ACOP) gives a hierarchy of preferred control measures:

- Changing the method of work so that the operation giving risk to exposure is no longer necessary.

- Modifying the process to eliminate production of a hazardous by-product or waste product.
- Where a hazardous substance is used intentionally, substitution by a new substance that presents no risk or less risk to health.
- The use of local exhaust ventilation (LEV).
- Enclosure of plant.
- Segregation.

Note: The use of Personal Protective Equipment (PPE) including Respiratory Protective Equipment (RPE) is only acceptable as a last resort.

1.3.4 Assessment Record

A suitable record of COSHH Assessments shall be kept, either on paper or as a database.

1.3.5 Review the Assessment

Re-assessments should be made when work practices change, or the current assessment is no longer valid.

1.4 Monitoring

Monitoring is required when failure or defects in the control measures could result in serious risks to health, or where it is necessary to ensure that a MEL or OES is not exceeded. The COSHH assessment will detail any monitoring that is required.

1.5 Health Surveillance

Where an assessment indicates a need for health surveillance of exposed employees, or those liable to be exposed to a dangerous substance, the Company must ensure that such employees are kept under suitable health surveillance.

1.6 Information, Instruction & Training

Personnel at work locations, who may have direct or indirect contact with hazardous substances, should receive sufficient training to enable them to effectively apply and use the various methods of control, PPE and emergency measures installed.

SP331: MANAGEMENT OF STRESS

1.1 Responsibilities

This procedure details how stress at work shall be handled. It shall apply to all office and field employees and it shall be the responsibility of the HSE Manager to ensure that this procedure is carried out.

1.2 Introduction

Stress-induced conditions are responsible for more work absenteeism and presenteeism than any other single cause. It has been proven that not all stress is bad and the 'optimum' stress level heightens job performance: employees' skills and abilities are in balance with job requirements, they are highly motivated and have high energy levels, with sharp perception and calmness.

Under utilised employees suffer from 'rust-out', are bored, have decreased motivation, apathy and absenteeism. At the other end of the scale is 'burn-out', with role overload, when employees suffer from insomnia, irritability, increased errors and indecisiveness.

Both 'rust-out' and 'burn-out' can have a detrimental effect on the individual, operation and Company.

1.3 Causes of Stress

There are many causes of stress, both work-related and non-work related and can include:

- Overwork.
- Frustration with career.
- Workplace bullying.
- Domestic, medical or other personal problems.

1.4 Stress Awareness

Often an employee suffering from stress is not aware of the problem. Line managers and colleagues should be able to recognise the symptoms of stress and deal with the situation as appropriate. Personal symptoms of stress may include:

- Irritability.
- Poor or degraded performance.
- Withdrawal.
- Mood swings.
- Excessive time off.
- Poor health.

A company-wide stress problem can be manifested by:

- High personnel turnover.
- Low morale.
- Increased accidents.

Should an employee suspect that a colleague is affected by stress, he should advise that individual's Line Manager, who should seek an informal interview with the employee to ascertain if there is a problem.

To help avoid problems, managers should use the annual Staff Appraisal interview to highlight and resolve potential problems before an employee becomes over stressed.

1.5 Actions

Should an employee suffer from undue stress, Line Managers should seek to alleviate the cause by considering one or more of the following:

- Assistance with or lightening of workload.
- Instigation of a plan to relieve further stress.
- Time off to resolve personal problems.
- Sick leave to provide a required break and/or to provide time for improvements to be made to the employee's working environment.

Although undue negative stress should be avoided and action taken to assist the employee, there may be occasions where corrective action may not be in the Company's interests. As such, mutual agreements between the Company and individual should be sought.

SP332: NEW AND EXPECTANT MOTHERS AT WORK

1.1 Introduction

This procedure summarises the steps Fugro GEOS has taken to protect the health, safety and welfare of new and expectant mothers at work and any female of child-bearing age.

Fugro GEOS does not regard pregnancy as ill health. The intention of this procedure is to prevent risks to the new or expectant mother or the unborn child from work, which would not normally produce such risk. Fugro GEOS will, in all cases, respect the confidentiality of the new and expectant mother and assist her in every way possible to protect her health, safety and welfare and that of her unborn child, whilst she is at work.

1.2 Definitions

The phrase, "new or expectant mothers" means an employee who is pregnant, who has given birth within the previous six months or is breast-feeding. "Given birth" is defined as delivering a living child, or after 24 weeks of pregnancy, a stillborn child.

1.3 Legal requirements

1.3.1 General

The health and safety at work of all employees, including new and expectant mothers is covered by the Health and Safety at Work Regulations, 1974, the Management of Health and Safety at Work Act, 1999 and the Workplace (Health, Safety and Welfare) Regulations 1992. There are other specific regulations that may apply and the UK Health and Safety Executive has recently published new guidance on the protection of the health, safety and welfare of new and expectant mothers. This procedure is in response to that guidance.

1.3.2 Process

- An Initial Risk Assessment must be performed. ([See SM102](#))
- Written notification of pregnancy, birth or breastfeeding is to be provided by the employee
- The Initial Risk Assessment must be reviewed. (See this Safety Procedure.)
- If there is a significant risk at work to the new and expectant mother, which goes beyond the level of risk found outside the workplace, Fugro GEOS will:
 - Temporarily adjust the working conditions or hours of the employee, or if this is not reasonable
 - Offer suitable alternative work, or if this is not feasible
 - Suspend the employee from work on paid leave for as long as is necessary to protect the health, safety and welfare of the new and expectant mother or unborn child
- Review the risks

1.4 Assessment of the possible risks to the new and expectant mother

This assessment should be read in conjunction with SM102.

Of those hazards identified, which may affect any person at work, the following are considered of special consideration:

1.4.1 Physical Hazards

1. Manual Handling

Pregnant and postnatal mothers are at much greater risk than usual from manual handling. These persons should not lift or move heavy loads and should seek assistance from another member of staff if such a task is required and they deem the load to be excessive. It is also recommended that new and expectant mothers should avoid manual handling activities where stretching, straining or moving in any way that causes discomfort is involved.

1.4.2 Biological and Chemical Hazards

The risk is not considered greater for new and expectant mothers than for any other member of staff, as Fugro GEOS does not purchase, store, use, create or transport any biological or chemical substance that has been assessed as having a high residual risk. When using any substance, which has the potential to do harm, all persons must read carefully the information provided and abide by the guidelines. Specifically, information may be obtained from the site's CoSHH Manual or the HSE Manager. New and expectant mothers may elect not to use substances that have the potential to do harm.

1.4.3 Working Conditions

14. Facilities

It is considered that facilities are adequate for all members of staff. New and expectant mothers may require extra rest periods and these may be taken, where considered reasonable by the Line Manager, at a time and place within the work location to suit the new and expectant mother, but not where disruption to other members of staff would result. Where additional privacy is required (for example, when breastfeeding) this can be arranged.

15 and 16. Working hours, fatigue, stress, violence

New and expectant mothers may be susceptible and therefore they are specifically encouraged to talk with their Line Managers about suitable health, safety and welfare arrangements.

18. Display Screen Equipment

There is no evidence to suggest that new and expectant mothers are at especial risk from using DSE. DSE self-assessments are required to be carried out by all Users and correct adjustment of workstation and particular attention to posture is recommended. A further assessment may be performed with the assistance of the site DSE Co-ordinator if discomfort is experienced. All users are advised to take regular work breaks away from their workstation and should avoid prolonged periods of sitting or standing without regular exercise or movement to maintain healthy circulation.

20. Working at height

New and expectant mothers shall not be required to work at height.

21. Travelling

There are specific guidelines produced by IATA, which preclude travel by air in the later weeks of pregnancy and these guidelines shall be adhered to. In addition, advice from the new and expectant mother's medical practitioner should be respected with regard to travel, inoculations or other medical prophylactics and generally working away from their base location.

22. Nutrition

New and expectant mothers are encouraged to intake adequate nutrition. Kitchen facilities are available to prepare such nutrition and reasonable breaks from work are permitted. Supplies of drinking water and other beverages are provided.

Finally, any other specific need may be considered on an individual basis. All employees are reminded that they have a legal and moral duty of care to look after their own health and safety and should stop the work at any time they are concerned about adequate health and safety provision.

SP333: Business Continuity Planning

1.0 OBJECTIVES

This procedure defines the procedures and precautions that are to be maintained for ensuring that the Company could continue to function, albeit at a reduced level, in the event of a disaster that could reasonably happen. It lists the responsibilities assigned by title to senior managers in the event of a major disaster.

2.0 SCOPE

This procedure applies to all the employees of Fugro Geos (Wallingford) that have a defined responsibility within the procedure or any associated schedules and to each of the Company's offices. The register of current holders of the defined management posts together with their nominated deputies are maintained separately as document M-A-011.

This document deals specifically with those disasters (with particular reference to fire) that would affect the office operations of the Company's. The procedure for dealing with disasters in the project related site environment must be addressed in the safety plans for individual projects.

3.0 GENERAL RESPONSIBILITIES

3.1 MANAGING DIRECTOR

It is the responsibility of the Managing Director of Fugro Geos to ensure that procedures are established and maintained for defining the immediate and long-term actions necessary. To maintain the safety of employees (and others) and the trading continuity of the Company's in the event of a disaster that could reasonably happen.

In order to give effect to such procedures, responsibilities are defined for key individual senior managers, by title, within Section 6 and by name in the Responsible Persons Register (M-A-011) covering the Wallingford office. The Managing Director is responsible for ensuring that this register is reviewed regularly to ensure that full cover and adequate deputising cover is maintained at all times.

3.2 SENIOR MANAGERS

Managers listed within the M-A-011 Register must be familiar with the contents of this document and, in particular, must be fully clear on their own responsibilities in the event of a disaster. All listed managers are issued with controlled paper copies of this document, which are to be retained off-site in a secure and accessible manner.

4.0 RELATED DOCUMENTS

- Authorisation/Responsibility Register
- Fire risk assessment for each office.
- All documents listed within the table in Section 6.6 of this document.
- Fugro Geos Safety Manual

5.0 DEFINITIONS

5.1 DISASTER

An unplanned event that is sufficiently significant to adversely affect the day to day running of the Company.

6.0 PROCEDURE

6.1 INTRODUCTION

The sole objective of this procedure is to define the actions required in response to any disaster to enable the Company to respond adequately to any problems arising from the disaster and to continue trading with a minimum of disturbance. In order to identify the actions required an assessment of the risks has been carried out and the results are summarised in section 6.2. In addition, and in line with statutory requirements, specific fire risk assessments have been performed for each office, which are held by the Safety Officer for Fugro Geos.

6.2 DISASTER SCENARIOS

The analysis of potential disaster scenarios has indicated that the most likely and most damaging disaster would be the total destruction of the Wallingford office by fire. By establishing procedures for accommodating the consequences of this event the Company would have in place adequate precautions for handling the majority of the urgent issues raised by all the other identified scenarios. This procedure defines, in Section 6.3, those procedures in terms of the responsibilities of senior managers at the Wallingford office. Disaster planning requires a number of systems to be established ahead of any disaster and maintained at a constant state of readiness. These are mentioned under the individual

responsibilities but are summarised in Section 6.6 in a form that can be used as a checklist for assessing the state of readiness.

The worst consequences of a fire would be loss of life and possible injury. Apart from the personal cost of such consequences this could involve the Company in expensive and time-consuming litigation. Each Company office is equipped with modern fire alarm systems that should ensure that all personnel are safely evacuated so that the risk of injury or loss of life is very low. It is not, however, so certain that a fire could be contained sufficiently quickly at any of the Company's offices to avoid significant damage.

The risk assessment has demonstrated that all the other identified disaster scenarios require actions before the event as well as those actions already defined in this document for a fire disaster. These actions are listed in Section 6.7 and each is assigned as an additional responsibility to the various senior managers.

6.3 EMERGENCY PLAN – WALLINGFORD

6.3.1 General

The following lists the actions necessary in the case of the total destruction by fire of the Company's Wallingford office split into immediate (first few hours), medium term (first few days) and long term (first few months). They are listed according to the senior managers, defined by title, to whom the responsibility for their implementation has been assigned. The individual responsibilities also extend to the establishment and maintenance of the systems listed in 6.6 as necessary to support the emergency actions (e.g. setting up inventories, establishing registers of emergency telephone numbers etc.).

In the event of a disaster all personnel must adopt certain overriding policies:

- The first priority, where the disaster is a fire or any other disaster that will impair the integrity or safety of the building, is for all persons to evacuate the building safely and calmly and for all personnel to be accounted for as quickly as possible.
- It is essential that a comprehensive log be maintained of all actions taken following the disaster as a function of time and date. All individuals with defined responsibilities must maintain their own diary of events and must pass their entries to the central point nominated by the Managing Director regularly and promptly.
- All communications with the Fugro Group and with the press must be by the Managing Director or, in his absence, by another Director.

The following define the specific actions to be taken by senior managers;

6.3.2 Managing Director

a) Immediate

The Managing Director holds overall responsibility for all aspects of the management of the disaster and, in particular, has responsibility for:

- Nominating a person (probably the MD's secretary) to maintain a log of all actions taken with time and date.

- Notifying the Fugro N.V. Management of the disaster and for keeping them informed.
- All contacts with the media/press
- Handling all contacts with the insurers for co-ordinating any immediate actions necessary and for inviting their participation in the disaster recovery programme.
- Convening and chairing a meeting of senior managers offsite to co-ordinate actions and to confirm their availability or to assign duties to the deputies.
- Confirming to the Human resources Manager the implications and consequential actions required on staffing (short-term lay-off, notification of change of work location etc.).

b) Medium term

- Chairing a damage limitation meeting with key staff to identify additional emergency actions arising from contract deadlines, liquidated damages in contracts, loss of critical equipment or purchased items and for delegating the identified tasks.
- Commission a stock take/asset check as soon as it is safe to do so. This may take the form of assigning a manager to accompany the loss adjuster to assist in the identification of items and to assess their condition.
- Establishing access to the asset inventories to make the insurance claims necessary prior to making temporary and long-term arrangements.
- Making decisions on medium and long-term staffing implications.
- Establish policy regarding prioritising of Company commitments for re-start of business.

• Long Term

- Establishing and chairing an inquiry into the disaster.
- Monitoring of the actions of each manager.
- Reporting to Group on the actions taken and the consequential losses.

6.3.3 Financial Controller

a) Immediate

- Carry out statutory notifications i.e. Inland Revenue, Customs and Excise, National Insurance. A register of the key data for these organisations should be stored off site and be available quickly.
- Advise banks and implement emergency cash and bank facilities plan
- Provide assistance to the Managing Director in dealings with insurers.
- Quantify loss of financial documentation and take actions necessary to minimise exposure.

b) Medium term

- Establish emergency arrangements for setting up alternative accounting systems based upon backups.
- Establish contact with existing clients and suppliers with a view to maintaining cash flow and supply of products to the Company.
- Make any necessary notifications to Companies House, the Company Bankers etc.
- Make necessary adjustments, write-offs etc. to Company accounts.
- Work with Human Resources to handle any consequential salary adjustments etc arising from staff lay-off.

- c) Long Term
 - Re-establish historical financial records.
 - Establish hardware and software for continuing the Company accounting function.

6.3.4 Safety Officer

a) Immediate

These immediate responsibilities primarily relate to the disaster of a fire at the Wallingford office.

- Ensure evacuation of building in an orderly fashion and, if safe to do so, check on accessible areas of building. Co-ordinate the result of checks of personnel groups.
- Confirm that fire services have been contacted.
- Notify the ambulance service if there are any casualties or suspected casualties before the arrival of the fire service.
- Notify the police so that they can deal with any problems associated with emergency vehicle access or with onlookers.
- Notify the fire service on arrival of any casualties or personnel unaccounted for.
- Assist the fire service in any way possible including advising on location and quantities of dangerous materials, identification and removal of obstructing vehicles and provide details of layout of building.
- Assist in making sure that the building is rendered safe and/or is secured against access by persons who could be at risk.

b) Medium term (Safety Officer)

- Deal with any statutory reporting requirements resulting from the disaster.
- Take any actions necessary, in conjunction with the Facilities Manager to ensure that the premises are safe and secure to a level commensurate to the timing of any rebuilding work.
- Initiate preliminary investigation of possible causes and of any injuries sustained.

c) Long Term (Safety Officer)

- Carry out an investigation of the disaster and the consequent response and report to the Board.
- Review safety procedures in the light of the disaster.
- Assess the safety issues arising from any temporary measures necessary to continue trading.

6.3.5 Facilities Manager

a) Immediate

- Take all necessary precautions for ensuring the security of the remaining building and any undamaged contents, confidential records etc.
- Maintain communications with other occupiers on the estate regarding any restrictions on access, evacuation and associated risks.
- Notify utilities to disconnect services using the register of contact details.

- Re-establish the postal and telecommunications services with a view to resuming commercial contacts with clients, suppliers and other necessary organisations.
 - Instruct retained estate agents to commence disaster plan actions.
 - Act as central control for all purchases of replacements, for retention of authorisations and other documentation for the loss adjusters, for ensuring that actions are in line with the loss adjuster's instructions/guidelines and to control costs.
- b) Medium term
- Agree on course of action to be taken regarding alternative temporary accommodation
 - Agree with Board the course of action to be taken regarding acquisition of new/reconstructed premises.
 - Review security provisions of damaged buildings in the light of the agreed course of action.
 - Co-ordinate plan of action for moving into the temporary accommodation.
 - Fitting out of temporary premises with furniture etc.
- c) Long Term
- Initiate planning for the long-term solution to the Company's accommodation [repair/rebuilding/replacement of present offices] in conjunction with the current relocation plans.
 - Establish a committee to define how the needs of each department are to be met and how this is reconciled with the guidance given by the insurers.

6.3.6 Manager responsible for Marketing

- a) Immediate
- Co-ordinate with Project Managers the actions necessary to advise all existing clients of the status of their projects. This will require access to client lists held secure and off-site and will also require some guidance to project teams on the conditions for claiming 'force majeure'.
 - Assist the Managing Director with any press releases to be issued.
 - Establish extent of damage to marketing materials
- b) Medium term
- Advise non-current clients.
- c) Long Term
- Re-establish marketing structure.
 - Source new marketing materials

6.3.7 Manager of IT

- a) Immediate
- Confirm integrity of 'off-site' backups
 - Acquire necessary hardware to mount temporary computing facilities for access to critical data files.
 - Confirm availability of sufficient software licences to cover needs.

- b) Medium term
 - Define the medium term hardware and software needs of the Company for the temporary arrangements of continued trading.
 - Re-establish electronic communication link with other offices.
 - Commence sourcing of hardware (computers, printers, computer-related furniture, office supplies etc.) for the long-term needs of the Company.
- c) Long Term
 - Participate in the planning of the long-term solution in relation to the computing and communication needs of the Company.

6.3.8 Human Resources Manager

- a) Immediate
 - Notification of next of kin in the event of fatality or injury using the current monthly hard copy listing of next of kin.
 - Maintain contact with any hospitalised casualties and communicate with relatives.
 - Arrange, where necessary the means for relatives to visit any casualties.
 - Where the disaster has occurred out of normal office hours notify staff of working arrangements for next day after discussions with a Board member (see MD actions).
 - Assist Company Secretary with any consequential communications necessary with statutory authorities.
- b) Medium term
 - Agree with the Board what temporary arrangements would be made regarding staffing (i.e. would we lay off non key members of staff and what would the legal and financial implications be-should we identify those members of staff who could be assigned to other offices).
 - Deal with any staff lay-off necessary.
 - Deal with requirements for temporary relocation or temporary re-assignment to other offices.
 - Investigate the need for trauma counselling (BUPA)
- c) Long Term
 - Implement any Board policies regarding long-term re-staffing and relocation.
 - Re-establish personnel infrastructure and databases.

6.3.9 Quality Assurance Manager

- a) Immediate
 - None
- b) Medium term
 - Establish alternative access to database in conjunction with IT Department.
 - Assist Accounts Department in making contact with suppliers.

- c) Long Term
- Revise Quality Management System to suit changed circumstances of the Company.

6.6 SUPPORTING DOCUMENTS FOR FIRE DISASTER

The following systems have been identified as essential to support the disaster recovery programme for coping with the results of a fire in a Company office. It is essential that these documents are held off site in an easily accessible format.

System	Responsible person	Storage format
Register of current holders of management functions	QA Manager	With this plan
List of all staff, next of kin, contact telephone numbers etc.	Human Resources	Monthly paper listings/Electronic
Risk assessment for the office	QA Manager	On network and back-up
Post-disaster log of actions (format only)	QA Manager	Network/Paper
List of dangerous materials – Wallingford	Safety Officer	Fire control box
Contact details for statutory/fiscal organisations	Financial Controller	Paper register and backup
Register of Company and Employee vehicles - Wallingford	Human Resources	Paper and backup
Asset database	Not assigned	Backup
Action plan for alternative accommodation at each office	Estate Manager	Paper and backup
Layout drawings of Wallingford buildings	Facilities Manager	Paper and backup
Contact details for adjacent properties and services providers – Wallingford	Estate Manager	Paper and backup
Up to date register of Client details (all offices as separate registers)	Marketing Dept.	Electronic
List of electronic communication systems and software licences	Manager of IT	Electronic
Contact details of all suppliers	QA Dept.	Electronic (Idealist)

6.7 SUPPORT SYSTEMS FOR NON-FIRE RELATED DISASTER

The following systems have been identified as essential to reduce the risk of and to mitigate the consequences of the principal non-fire related disaster scenarios covered in the risk assessment.

System Responsible person ACTION

Security related issues

- Ensure security of access to each office Facilities Visitor book/tags
- Ensure security of confidential documentation Man. Director Secure office files

Staff loss issues

- Define deputies for key Company functions Man. Director Identify key staff
- initiate any training needed to provide adequate cover Man. Director Training programme
- Monitor staff morale in vulnerable areas Human Resources N/A

IT issues

- Maintain back up procedures in all offices IT Manager Follow procedures
- Maintain tight virus checking on all systems IT Manager Follow procedures
- Firewall all external communication links to networks IT Manager Follow Group policy

Contract issues

- Monitor all overseas contracts for potential political/security problems All commercial departments Tender and Contract Review
- Perform risk assessments that include financial and commercial aspects as well as safety All commercial departments Tender and Contract Review

Financial issues

- Employing staff with access to financial information and other sensitive material Financial controller Take up references and monitor closely

Statutory issues

- Maintain management systems that tracks changes in legislation QA Manager Use updating services (Croner)
- Perform regular audits of our statutory obligations QA Manager Include in audit schedule
- Maintain policy of strict adherence to all statutory obligations Managing Director Include In company policy statements.

SP405: INCIDENT REPORT FORM

Date and time of incident		Date and time of report	
Person(s) reported to		Witnesses	
Person making this report		IRN (Office Use only)	
Classification (tick box)			
Fatality	<input type="checkbox"/>	Major injury	<input type="checkbox"/>
Lost workday case	<input type="checkbox"/>	Medical treatment case	<input type="checkbox"/>
Minor injury	<input type="checkbox"/>	Over 3-day injury	<input type="checkbox"/>
Near miss	<input type="checkbox"/>	Restricted work case	<input type="checkbox"/>
		Number of days lost	<input type="checkbox"/>
		Dangerous occurrence	<input type="checkbox"/>
		Unsafe condition	<input type="checkbox"/>
		Unsafe working practice	<input type="checkbox"/>
		Occupational disease	<input type="checkbox"/>
		Other	<input type="checkbox"/>
About the Event			
Where did it happen?		Vessel (if applicable)	
Contract number		Project Manager	
Fugro GEOS persons involved			
Other persons involved			
Description of events (include as much detail as possible and provide a sketch below)			
Sketch of events			
Nature of injury or condition to person(s) (attach medical report if appropriate)			
What immediate remedial action was taken?			
In your opinion, how could this have been prevented?			
Is this the opinion of all witnesses?			
Date and time of incident		IRN (Office Use only)	

Type of incident (tick box)			
Contact with moving machinery or material	<input type="checkbox"/>	Struck by moving vehicle	<input type="checkbox"/>
Struck against something fixed / stationery	<input type="checkbox"/>	Trapped by something	<input type="checkbox"/>
Struck by moving / flying / falling object	<input type="checkbox"/>	Handling / lifting / carrying	<input type="checkbox"/>
Exposure to hazardous substance	<input type="checkbox"/>	Drowning / asphyxiation	<input type="checkbox"/>
Fall from height / height in metres	<input type="checkbox"/>	Exposure to explosion	<input type="checkbox"/>
		Slip / trip / fall	<input type="checkbox"/>
		Exposure to fire	<input type="checkbox"/>
		Electrical	<input type="checkbox"/>
		Exposure to elements	<input type="checkbox"/>
		Animal	<input type="checkbox"/>

The Investigation	
Investigation started	Investigation completed
Investigation team included the following persons	
If the incident was a near miss or unsafe working practice or condition, what do you consider the consequences could have been? (Describe category / severity / possible cost etc)	
Investigation found the following	
The following actions are recommended to prevent recurrence	
The following procedures require amendment	
The following training needs have been identified	
Circulate report to	HSE Manager &



SP406: VESSEL SAFETY AUDIT CHECKLIST

Vessel Particulars

<u>GENERAL</u>	Full Name	
	Call Sign	
	Classification	
	Year Built	
	Year Modified	
	Certificate of Registry / Flag / Port	
	Operator	
	Tonnage	
	Owners	

<u>DIMENSIONS</u>	Length overall	
	Draft	
	Deck Space (m ²) / Dimensions	

<u>PERFORMANCE</u>	Max. speed	
	Economical speed	
	Min. survey speed	

<u>PROPULSION</u>	Main Engine(s) Type	
	Horsepower/kW	
	Propeller (s)	
	Bow thruster (s)	

<u>UTILITIES</u>	Crane (location, reach, SWL)	
	A frame (fixed, hydraulic, SWL)	
	Main Winch and Capacity	
	Ancillary winch and Capacity	
	Other	

Sketch of Deck Layout and Dimensions



1.4.4 Fitness for Purpose

Is the vessel fit for the purpose for which she is to be engaged? YES NO

General condition of vessel & comments:	
Time of year work is to be performed	
Geographical area of work	
Anticipated local weather conditions	
Can all bridge watch keepers communicate in English?	
Is the deck layout suitable?	

1.4.5 Vessel / Crew Certification and Documentation

Is all certification and documentation in order? YES NO

General Comments:	
Life Saving Appliance Certificates	
Officer Competency Certificates	
Valid Certification of Lifting Appliances	
Minimum Safe Manning	
Stds of Training, Certification & Watchkeeping -Seafarers	

1.4.6 Safety Management System (SMS)

Is the vessel adequately managed? YES NO

General Comments:	
Evidence to show proper management of vessel	
Is an up to date emergency plan / muster list onboard?	
Where is it located?	
What means for sounding alarm throughout the vessel?	
Is there evidence that persons joining the vessel are given suitable induction and information?	
What arrangements are there to ensure vessel security?	
Are there recording systems for incidents /accidents etc?	
Is there a stowage area for fuel, paint and chemicals?	
Is there a waste / garbage management plan?	
Frequency of emergency drills	

1.4.7 Survival Equipment

Is all survival equipment in place and in good condition? YES NO

Condition of equipment & comments:	
Number and individual capacity of lifeboats and liferafts	
Total lifeboat / liferaft capacity and %age redundancy	
Expiry date of Lifeboat / liferaft inspection certificates	
Number of lifejackets onboard, and stowed location	
Date of last inspection	
Location and number of life buoys/rings	
Survival suits, (number of and location)	
Type and number of flares	
Stowed location and expiry dates of flares	
Is suitable emergency lighting provided	
Does it work	
Location of first aid equipment on board	
Who on board is first aid trained and to what level?	
Other	



1.4.8 Fire Safety, Detection & Fire Fighting

Condition of Equipment and comments	
Does the vessel have smoke or fire alarms/detectors?	
What fire fighting equipment exists?	
When was this equipment last tested?	
Have the crew been trained in fire fighting techniques?	
Is there remote activation of FFE in machinery space?	

Is this acceptable to the Charterer? YES NO

1.4.9 Accommodation / Galley

General condition & comments:	
Are food prep, cooking & eating areas clean & hygienic?	
What types of food are normally available to charterers? (e.g. Western, Asian, Halal, vegetarian, etc)	
Are showers and washrooms in good condition & clean?	
Is all accommodation in a clean condition with all equipment and fittings in working order?	
Are cabins suitably air-conditioned / heated?	

Is this acceptable to the Charterer? YES NO

1.4.10 Navigation & Communications Equipment

General conditions & comments:	
Do SOLAS and/or other regulatory authorities require all vessel equipment onboard & in working order?	
GPS	
Echo sounder	
Magnetic gyro/compass	
Admiralty Charts	
Ship's Log	
Navigational Lights	
Radar	
Clock and Barometer	
Ship's Whistle/Horn or other sound signal	
Radio Communications (GMDSS, VHF, SSB etc) Specify	
EPIRB / SART	

Are these items in good order? YES NO

1.4.11 Audit & Inspection

General Comments:	
Has a vessel audit (not this event) been conducted in the last 6 months, and if so when and by whom/for whom?	
Please attach a copy to this report (and if appropriate a report on the current status of the corrective actions).	

Signed by Vessel Master:
 Name:
 Position:
 Date:

Signed by Fugro GEOS Rep:
 Name:
 Position:
 Date: