
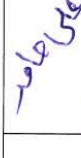


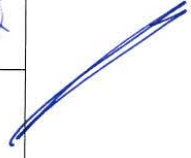




قطر للبترول
Qatar Petroleum

QP HSE REGULATIONS FOR CONTRACTORS

DOC NO: QP-REG-S-001

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CUSTODIAN	REVIEWED	SUPPORTED	APPROVED	

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Document Change History

Doc No.	Rev. No.	Rev. Date	Revision Description	Page No.	Approved by
	1	Nov. 1996	Issued for approval as Corporate standard	All	SQ
QP-REG-S-001	2	Sept. 2003	Re-formatted only. No text changed	All	SFE
QP-REG-S-001	3	June 2009	Revised and updated to reflect Health, Safety, and Environment, as well as the requirements of the Procedure and Guidelines for managing HSE in contracts	All	MD
REMARKS:					

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10.0 APPENDICES

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MESSAGE FROM THE MINISTER

In Qatar Petroleum (QP), we are committed to the protection of the health and safety of our employees, contractors and members of the public, as well as the protection of our assets and the environment. This commitment is clearly stated in our Health, Safety and Environmental (HSE) policy. However, this objective of doing no harm while conducting our business cannot be achieved without the active involvement of Contractors and their employees who carry out a large percentage of the work and are exposed to the associated HSE risks. That is why the HSE policy requires contractors working on behalf of the Corporation to demonstrate a similar commitment to HSE.

It therefore pleases me greatly that this document, which spells out the minimum expected of contractors as a demonstration of their commitment to HSE, has become available. It describes the basic HSE rules and regulations for Contractors and provides them with guidance on how HSE is to be managed in order to comply with QP's HSE requirements. The provisions in the document are not only aimed at identifying and managing the HSE risks in all phases of the contracting process in a systematic manner but also to ensure continuous improvement in the way we manage the risks. The overall goal is to reduce and consequently eliminate HSE incidents which impact negatively on the health and safety of people, assets and the environment.

We believe that HSE is everyone's responsibility from the most senior management levels to the lowest levels of any organization. Contractors are responsible and will be held accountable for the HSE performance of both their employees and that of their subcontractors. All work and activities carried out for and on behalf of QP shall be in compliance with the provisions of this document, specific contractual HSE requirements and all other applicable QP policies, procedures, standards as well as State of Qatar Laws and regulations. Contractors shall therefore have provisions in place to monitor, document and effectively manage employee and subcontractor HSE programs and performance to ensure compliance.

Appropriate sanctions shall be applied for non-compliance. Any situation that might necessitate non-compliance must be immediately brought to the attention of the appropriate QP personnel (QP Site HSE Representative and/or Contract Holder).

I am counting on your co-operation in this regard. Lets work together to protect people, assets, and the environment from the hazards in our business.


HE Abdulla bin Hamad Al-Attiyah
Deputy Prime Minister, Minister of Energy & Industry,
QP Chairman and Managing Director



سياسة الحفاظ على الصحة والسلامة والبيئة بقطر للبترول

HEALTH, SAFETY & ENVIRONMENTAL CONSERVATION & PROTECTION POLICY

QP policy is to conduct its activities such that it:

ترتكز سياسة قطر للبترول على الأسس التالية:

- Complies fully with all applicable legislation, regulations and relevant industry standards.
- Manages occupational health, safety, quality, environment and sustainable development matters as an integral part of its business activities.
- Strives towards an incident free, secure, safe and healthy workplace.
- Promotes the health and safety of its employees, contractors, visitors and the local community, and considers the environmental impact in all phases of QP business, including engineering design, construction, testing, commissioning, operations, maintenance and decommissioning of plants, facilities and equipment.
- Promotes HSE culture within QP and at a national level.
- Commits fully to and supports the continuous improvement process, including continuously seeking ways to turn HSE challenges into opportunities.
- Enhances QP's corporate social responsibility.

- الالتزام التام بكافة اللوائح والقوانين والمعايير الصناعية المنظمة للعمل
- إدارة كافة الشؤون المتعلقة بالصحة المهنية والسلامة والجودة والبيئة والتنمية المستدامة باعتبارها أحد أهم عناصر العملية الإنتاجية مع العمل على تحسينها بصورة مستمرة.
- بذل كافة الجهود لتوفير بيئة عمل آمنة خالية من الحوادث.
- الأخذ بعين الاعتبار سلامة العاملين والمقاولين والزائرين خلال كافة مراحل العمل بقطر للبترول، والتأثير البيئي الناتج عنها وذلك بدءاً من التصميم الهندسي للمشروعات حتى إتمام تنفيذها واختبارها وتشغيلها ومن ثم صيانتها.
- العمل على نشر الوعي بالصحة والسلامة والبيئة داخل قطر للبترول وعلى المستوى المحلي.
- الالتزام بتطبيق مبدأ التحسن المستمر في أداء الصحة والسلامة والبيئة والسعي لتحويل تحديات الصحة والسلامة والبيئة إلى عناصر إيجابية في العملية الإنتاجية.
- تحسين وتطوير الدور الاجتماعي لقطر للبترول.

This policy is implemented by:

ويتم تطبيق هذه السياسة من خلال :

- Defining required performance standards in an appropriate Health, Safety, Quality, & Environment Management system.
- Monitoring performance standards and ensuring that they are implemented by line managers, who are fully responsible for ensuring that all activities under their control are carried out in line with the above policy.
- Requiring that all persons acting for or on behalf of the corporation are appropriately informed and trained, and that they act positively to prevent ill health, injury, damage and loss.
- Creating awareness of sustainable development within QP and ensuring full integration of economic, environmental and social imperatives in all QP business decisions.
- Ensuring that joint ventures and contractors working on behalf of the corporation apply QP's HSE standards.
- Requiring that HSE performance be managed with the same gravity as any other aspect of industrial performance.
- Developing a culture of reporting all incidents and accidents as a basis for improving HSE performance.

- تحديد معايير الأداء المناسبة لإدارة أنشطة الصحة والسلامة والبيئة الجيدة في مراكز العمليات المختلفة.
- مراقبة مستوى أداء أنشطة الصحة والسلامة والبيئة الجيدة في مناطق العمليات، ومقارنتها بالمعايير المحددة مع الأخذ بعين الاعتبار إعطاء المسؤولية الكاملة للمديرين التنفيذيين للتأكد من أن العمل يتم وفقاً للسياسة التي وضعتها قطر للبترول الخاصة بالصحة والسلامة والبيئة.
- التأكد من أن كافة العاملين بقطر للبترول بما فيهم المقاولون الذين يقومون بأعمال لقطر للبترول على دراية تامة بسياسة قطر للبترول الخاصة بحماية الصحة والسلامة والبيئة الجيدة وأنه قد تم حصولهم على التدريب المناسب بحيث أصبحوا قادرين على تجنب الحوادث في نطاق عملهم بصورة إيجابية.
- التأكد من أن شركاء قطر للبترول و المقاولون الذين يقومون بأعمال لقطر للبترول لديهم معايير للصحة والسلامة والبيئة الجيدة مماثلة لتلك المطبقة بقطر للبترول.
- الاهتمام بأداء الصحة والسلامة والبيئة الجيدة بنفس مقدار الاهتمام بباقي عناصر العملية الإنتاجية.
- نشر الوعي بأهمية الإبلاغ عن الحوادث داخل قطر للبترول كوسيلة لتحسين وتطوير الأداء.
- نشر الوعي بأهمية التنمية المستدامة والتأكد من أن عناصر التنمية المستدامة قد تم الإلتزام بها في كافة العمليات.

Date : 4-4-2007

د. نديم رنجيس رئيس مجلس الوزراء وزير الطاقة والصناعة

Deputy Premier
Minister of Energy & Industry

INTRODUCTION BY QP CORPORATE HSE MANAGER

The QP HSE Regulations for contractors is the third in the set of three documents that deal with management of HSE in QP contracts. The first and second documents (Procedure for managing HSE in Contracts and Guidelines for managing HSE in contracts) describe the overall process and provide tools, templates and guidance for QP personnel as regards what is required of them in terms of management of HSE in contracts from contract initiation, planning through tendering, execution to close-out. This third document is specifically targeted at contractors.

It outlines the minimum expectations the contractor, its employees and sub-contractors must comply with while working for and on behalf of QP especially on QP premises. These rules and regulations, which are aimed at reducing and eliminating HSE incidents in our operations, are but a minimum and shall be given to each contractor awarded a contract to undertake work or services for QP. Compliance to the provisions of this document does not in any way relieve contractors from their responsibility to comply with all other QP policies, procedures and specific contractual HSE requirements.

The framework within which QP and Contractors work to achieve compliance to these rules and regulations is in line with that of the International association of Oil and Gas producers (OGP) as shown in Figure 1 below. While working together on each contract, responsibility for HSE management activities is shared between QP and the Contractor. QP personnel have exclusive responsibility for certain HSE management activities while the contractor has responsibility for others. Some activities are the joint responsibility of both QP and the Contractor. Table 1 below illustrates, more clearly, the key HSE management activities expected of all Contractor's at various stages in the QP contracting process.

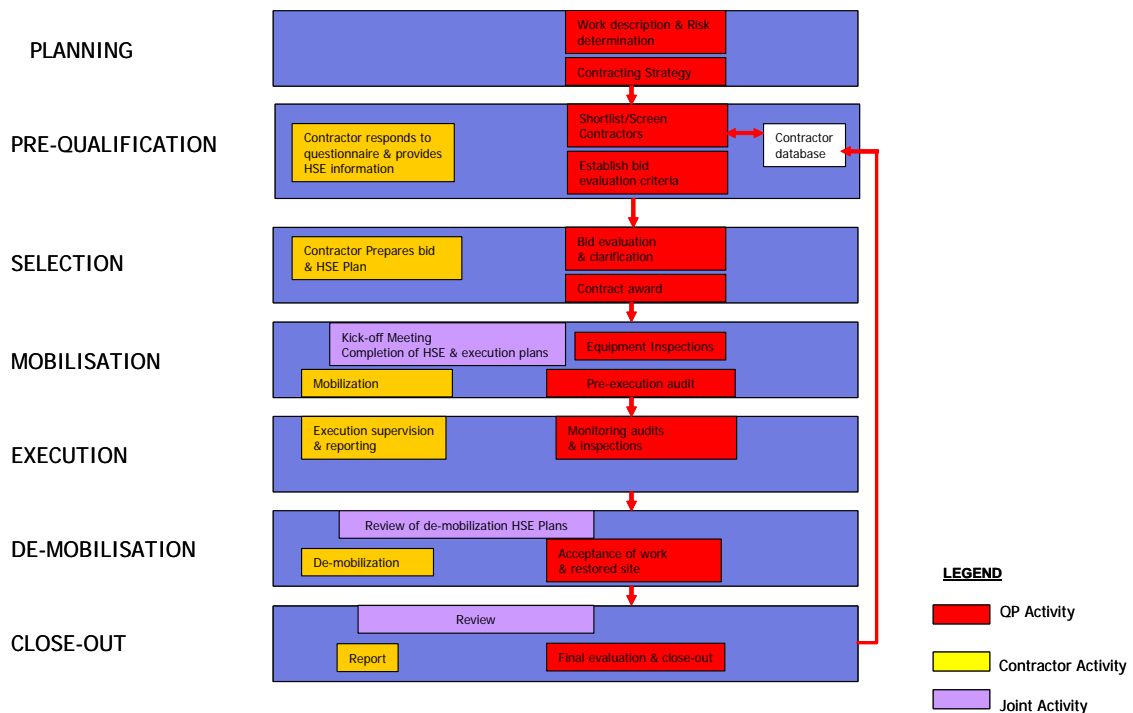


Figure 1: QP and Contractor HSE Management activities in the contracting process

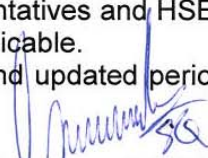
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TABLE 1: Contractor's key HSE Management activities during the QP Contracting Process

CONTRACTING PHASE	KEY CONTRACTOR HSE ACTIVITY
Pre-Tender period	<ul style="list-style-type: none"> - Establish and ensure own HSE Management System is working - Take part in HSE pre-qualification if requested by QP
Tender Period	<ul style="list-style-type: none"> - Carry out own risk assessment on work/services being bid for - Compile and submit preliminary Contract HSE Plan
Tender evaluation period	<ul style="list-style-type: none"> - Respond to any queries from QP concerning the preliminary plan
Mobilisation period	<ul style="list-style-type: none"> - Nominate and submit to QP, for approval, names of key personnel such as HSE Officers - Submit to QP a list of sub-contractors, if any, and make adequate arrangements for them to comply to QP HSE requirements - Finalize and submit the Contract HSE Plan for approval - Undergo equipment inspection and mobilize to site - Notify QP of readiness to start work, submit to pre-execution audit, correct any identified deficiencies and obtain QP HSE work commencement certificate
Execution phase	<ul style="list-style-type: none"> - Execute the Contract HSE Plan and comply with all QP HSE requirements including provisions of this document and specific contractual HSE requirements. - Carry out adequate HSE supervision, audits and inspections - Submit to QP HSE audits/ inspections - Report and investigate all HSE incidents - Ensure adequate communication of HSE information to own and subcontractor staff - Compile and report HSE performance statistics at least monthly to QP
De-mobilisation and Close-out	<ul style="list-style-type: none"> - De-mobilize while maintaining same level of vigilance to HSE issues as in the execution phase - Carry out Site restoration and obtain QP site restoration certificate - Submit overall HSE performance report to QP

Contractors shall make sure these activities are carried out as well as comply with all the requirements of this document in all QP contract operations. Specific HSE roles and responsibilities for contractor personnel are contained in Appendix 1. Concerned QP personnel (Contract Holders, QP Site HSE Representatives and HSE Advisers) shall enforce all the rules and regulations in this document as applicable.

The rules and regulations will be reviewed and updated periodically to keep them fit-for-purpose.


Saad Ali Mohammed Al-Kubaisi
Manager, Corporate Health, Safety, Environment and Quality,
Qatar Petroleum

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1.0 OBJECTIVE

To provide and communicate the minimum HSE requirements that contractors, their employees, and sub-contractors are expected to comply with while working for QP so as to: ensure workplace safety, protect the health of all persons that may be affected, and protect the environment.

2.0 SCOPE

The rules and regulations in this document have been compiled to govern HSE activities of Contractors in all phases of the QP contracting process with particular emphasis on the contract execution phase. They are applicable to all contracts in Qatar Petroleum whether at the corporate, regional or operational levels of the corporation. The extent to which they are applicable to a specific contract however depends on the nature of the work and level of HSE risk that is present in the contracted work or service. Compliance to these rules and regulations does not in any way relieve contractors from their responsibility to comply with all other relevant QP policies, standards and procedures including specific contractual HSE requirements and location-specific requirements. They are also not a replacement for the applicable State of Qatar laws and regulations. In the event of any conflict or inconsistency between these regulations and that of any other legally binding documents pertaining to the same provision, the most stringent requirement shall prevail. Furthermore, where reference has been made in these regulations to another document, the latest approved version of that document will apply.

3.0 DEFINITIONS AND ABBREVIATIONS

- | | |
|----------|---|
| Accident | - An accident is any unplanned event, or chain of events, which has resulted in actual injury, illness, damage or loss. All accidents are therefore incidents, but not all incidents are accidents. |
| ACGIH | - The American Conference of Governmental Industrial Hygienists |
| ALARP | ALARP means As Low As Reasonably Practicable. It refers to reduction of risk to a level where the cost of further risk reduction is grossly disproportionate when compared to the actual risk reduction that would be achieved. |
| APF | - Assigned Protection Factor - means the minimum level of respiratory protection that a respirator can be expected to provide, assuming it is properly fitted, worn, and functioning. |
| BEI | - Biological Exposure Indices |
| BRI | - Building-Related Illness where symptoms of the indoor facility are confirmed by a physician's diagnosis of a specific illness such as hypersensitivity disease, infectious disease and toxicosis |
| Contract | - A written and legally binding agreement between the Corporation and another party which details the terms and conditions under which such party performs works and /or supplies products or services in return for payment |

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|--------------------------------|---|
| Contract Holder | - A person appointed within the Sponsor department who is responsible for making and managing all aspects of the Contract. He / She is sometimes called Job Officer. |
| Contract HSE Assessment | - This is a detailed determination of the HSE issues associated with the Contract and the arrangements that would be used to address the issues. Apart from risk assessment, it also involves identification of applicable legislation, definition of organizational interfaces, roles and responsibilities, and determination of training and competency requirements. In other words, it is an assessment of how the elements of the HSE management system apply to the Contract and usually forms the basis for the HSE specification of the contract. |
| Contract HSE Plan | - The HSE Plan of the contractor stating how the HSE risks in the performance of the Contract will be managed in order to meet QP HSE requirements for protecting people, assets and the environment. It should cover the contract phases from pre-mobilization, through contract execution, to demobilization. It demonstrates the contractor's understanding of the requirements stated in the Contract HSE specification and should state the HSE policy, procedures, and standards to be adopted in carrying-out the Contract. |
| Contract HSE specification | - This refers to the HSE requirements defined for a particular Contract in order to eliminate or minimize the risk. It is usually based on the result of the HSE assessment for the Contract and forms the framework within which the contractor makes the contract HSE plan on which he is monitored. |
| Contractor | - A firm which has entered into a legally binding business agreement contract to supply a product or provide services to QP. The term is also sometimes applied to suppliers who are available to provide services but are not currently in a contractual relationship with QP. |
| Contractor Manager | - The person named in the Contract to represent the Contractor in respect of the Contract and to be responsible for the management of the Contract. (In some cases he / she is the Contractor's Project Manager) |
| Contractor Site Representative | - The person appointed in writing by the Contractor Manager to assist the Contractor Manager in supervising the execution of the Contract activities on a given site. (In some cases, this is the Contractor's Site Engineer.) |
| Control or Barrier | - A measure put in place to prevent threats from releasing a hazard. Examples include:

Guards or shields (e.g. coatings, inhibitors, shutdowns), Separation (time and/or space), Reduction in inventory |

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		(bacterium, human fatigue), Control of energy release (e.g. safety valves, lower speed, different fuel source), Administration (e.g. warnings, training, drills), Procedural (e.g. rules).
Danger notice		A notice in approved form attached to apparatus and equipment, which is live, calling attention to the danger of approach to, or interference with, such apparatus or equipment.
Decibel (dBA)	-	Is a dimensionless unit for expressing sound level at A weighting scale
Effect	-	An effect is either the consequence of not managing a hazard (e.g. loss of control) or the consequence of an intended release. An effect usually impacts negatively on the health and safety of people
Electrical equipment	-	Any producer, carrier or consumer of electrical energy
Exposure Hours:	-	Exposure Hours represent the number of hours of employment including overtime and training but excluding leave, sickness and other absence.
Fatality		An accident that results in the loss of life, or an injury which culminates in the death of the injured, regardless of the time intervening between injury and death.
Flammable Atmosphere	-	An atmosphere containing a quantity of flammable gas or vapour in a concentration capable of being ignited
Hazard	-	Hazard is the potential to cause harm including injury/illness, property damage, disruption of productive arrangements and adverse effects on the environment. Examples include hydrocarbon under pressure, object at height, electricity, toxic substances, radiation, noise, and vehicle in motion.
Hazardous Area		An area in which there exists or may exist a flammable atmosphere. They are classified according to the IP Model code of Safe Practice into Zone 0, Zone 1 and Zone 2.
Hazards & Effects Management Process (HEMP)	-	This is a systematic and structured method which ensures that all hazards are identified and assessed, in order to determine the possible consequences of hazard release or exposure. It also goes further to put in place essential controls to eliminate or mitigate the release of hazards and to recover from failure of such controls. It therefore helps in reducing HSE risk to a level as low as reasonably practicable (ALARP).
Hertz	-	The frequency with which sound pressure changes, e.g. one pressure oscillation per second is equal to one Hertz
HSE Pre-	-	A procedure for analyzing the HSE capabilities and

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qualification	confirming the suitability of companies for inclusion on a list of Tenderers to be invited to submit Tenders for the performance of work or services of a high or medium risk nature.
HVAC	- Heating, Ventilation and Air-Conditioning
IDLH	- Immediately Dangerous to Life and Health.
Incident	- An Incident is a general term for any unplanned event, or chain of events, which has, or could have caused, injury, illness, damage or loss. It is used to include all accidents and near misses.
IOSH	- The Institution of Occupational Safety and Health
Kick-off Meeting	- A meeting conducted after the award of a Contract between the Contractor and QP personnel for the purpose of discussing the arrangements as well as requirements that must be met and the issues that must be addressed both before the work or services in the contract would start, and during the actual execution of the work or services.
LEL	- Lower Explosive Limit - This is the minimum concentration of a flammable gas or vapour that will propagate flame when exposed to a source of ignition.
Lifting equipment	- A generic term used to cover both Lifting Tackle (or Gear) and Lifting Machines (or appliances) – ‘Lifting Equipment’ shall mean any work equipment for lifting or lowering loads, and includes its attachments used for anchoring, fixing or supporting it. It includes any lifting accessories that attach the load to the lifting machine in addition to the equipment that carries out the actual lifting function. For details, refer to the QP Lifting Equipment technical Regulations; Doc. No.: QP-REG-Q-001, Rev. 3
Local Ignition Sources	- Shall include but are not limited to: <ul style="list-style-type: none"> • Electric and gas welding torches. • Hot surfaces • All naked flames, fires, exposed incandescent material including pyrophoric deposits, electric arcs and sparks. • Blow lamps, primus stoves and tar boilers. • Grit and shot blasting machines. • Internal combustion engines. • Power operated grinders, and cutting machines. • Electric and communication equipment of industrial type i.e. which is not flame proof, intrinsically safe, or of an approved type. • Power operated ferrous tools.

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- Hand operated ferrous tools in contact with dry concrete, stone masonry.
- Diesel engines, which are not provided with approved exhaust and inlet air cut-off systems, ancillary electric equipment and any other machine capable of producing a local source of ignition.
- Matches (safety or otherwise) cigarette lighters, un-approved electric torches and battery operated items such as transistor radios.
- All instruments embodying the use of electricity either in the driving, indicating or recording mechanism, which are not "flame-proof" or "intrinsically safe".
- High intensity electromagnetic radiation e.g. from cell phones

Lost Time Injury (LTI) - A work related injury, which renders the injured person unable to perform his regular job or Restricted Work on any day after the day on which the accident occurred. Note: if, in a single incident 20 people receive lost time injuries, then it is accounted as 20 LTI's (not 1 LTI). Lost Time Injuries are the sum of Fatalities (FAT), Permanent Total Disabilities (PTD), Permanent Partial Disabilities (PPD), and Lost Workday cases (LWC).

$$LTI = (FAT+PTD+PPD+LWC)$$

Lost Workday Case (LWC): - A lost workday case is any work injury other than a Permanent Partial Disability, which renders the injured person temporarily unable to perform any Regular Job or Restricted Work on any day after the day on which the injury was received.

Medical Treatment Case (MTC) - A work related injury, which results in neither lost time nor restricted work but which requires treatment by or under the supervision of, or from the specific order of, a medical doctor.

Method Statement - A work method statement is a document that details the way a work task or process is to be carried out. It gives a step-by-step guide on how to do the job safely, outlines the hazards involved and the control measures that have to be introduced to ensure the safety of anyone or anything that will be affected by the task or process.

MSDS - Materials Safety Data Sheet

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Near Miss	- A Near Miss is an incident which could have, but did not result in injury, illness, damage, product loss or harm to the company reputation.
NEBOSH	- National Examination Board in Occupational Safety and Health
Non-Hazardous Areas	- An area not classified as zone 0, 1 or 2.
NRR	- Noise-Reduction Rating - a numerical value assigned by manufacturer to a hearing protective device which represents the amount of noise attenuation.
OEL	- Occupational Exposure Limit which means either Threshold Limit Value (TLV), BEI or IDLH
Offshore Restricted Area	- An area bounded by an imaginary circle, having a radius of 1 mile from an offshore installation such as SBMS, Wellhead Jackets, Production Stations and Jack-up units.
Onshore Restricted Area	- An area bounded by a fence but that is not offshore
Permanent Partial Disability (PPD)	- Work injury that results in permanent loss of a body part (e.g. severed finger) or loss of use of a part of the body to perform work.
Permanent Total Disability (PTD)	- Work injury that results in complete inability of the injured person to perform any form of work on a permanent basis.
Process	- "Process" means any activity involving a highly hazardous chemical including any use, storage, manufacturing, handling, or the on-site movement of such chemicals, or combination of these activities. For purposes of this definition, any group of vessels which are interconnected and separate vessels which are located such that a highly hazardous chemical could be involved in a potential release shall be considered a single process.
QP Site HSE Representative	- The person appointed in writing to assist the Contract Holder with site HSE supervision during execution of the contract activities on a given site or sites. This person can be either from Regional/Operational HSE or from the Sponsor department's HSE unit.
Radioactive Substances	A substance designated in national law or by a regulatory body as being subject to regulatory control because of its radioactivity.
Recordable Cases	- These are incidents which form part and parcel of our regular safety statistics needed for HSE performance monitoring and review. They are: Fatalities (FAT), Permanent Total Disabilities (PTD), Permanent Partial Disabilities (PPD), Lost Workday cases (LWC), Restricted work cases (RWC), and Medical treatment cases (MTC).

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Incidents outside the above-mentioned cases are regarded as *reportable* but not *recordable*.

Regional/ Operational HSE Adviser	- A Health, Safety and Environment specialist responsible for providing line management with advice, support and guidance on HSE technical and management system issues in line with the QP HSE General Mandate, including advice on techniques, equipment, HSE auditing, training, incident investigation, emergency procedures, etc.; Accountability for HSE performance in the line however does not lie with the HSE Adviser but with the concerned Line Management.
Restricted Area	- A Restricted Area is defined as that area over which QP exercises control of all movements and operations and where entry is granted only to those persons in possession of an official pass, issued by the Corporation's Security Section, and/or an Authorized Police Pass. It includes offshore, onshore, and shore-connected jetty restricted areas
Restricted Area at Shore-connected Jetties	- An area bounded by an imaginary line having radius of not less than 160 meters in a seaward direction from the jetty.
Restricted Work Case (RWC)	- A work related injury, which renders the injured person unable to perform his regular duties but results in a Restricted Work assignment on any day after the day on which the accident occurred. The Restricted Work assignment must be meaningful and pre-established, or a substantial part of a regular job.
Risk	<p>- Risk is the combination of the likelihood (or probability) of an event occurring and the severity of the outcome.</p> <p>Risk = likelihood of an event x severity of outcome</p>
Risk Assessment	- A systematic examination of a task, job or process for the purpose of identifying the significant hazards that are present, deciding if the existing controls reduce the risk to an acceptable level, and if not, deciding what further control measures must be taken to reduce the risk to an acceptable level.
Risk Assessment Matrix	A tool for determining risk. It consists of a two dimensional matrix in which the horizontal axis represents historical probability or likelihood of release of a hazard (harmful event) occurring while the vertical axis represents the severity of the consequences of release of the hazard.
RPO	Radiation Protection Officer- an individual technically competent in radiation protection matters relevant for a given type of practice who is designated by the registrant or licensee to oversee the application of the requirements of

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		the Standards
SBS	-	Sick Building Syndrome where the indoor facilities are the known or assumed cause of physical complaints and / or symptoms of the indoor facility occupants
Scope of Work		The description, in established parameters, of the work required to achieve the objectives of a project or activity.
Shall	-	Throughout this document, "shall" means that an activity or requirement is mandatory
STEL	-	Short Term Exposure Limit - the concentration to which it is believed that workers can be exposed continuously for a short period of time (15 minutes) without suffering irritation, chronic or irreversible tissue damage and narcosis, and it should also not occur more than 4 times a day with at least 1 hour between each excursion.
Tenderer Bidder	or	- Any natural or juristic person who submits a Tender to QP in response to an Invitation to tender for a Contract
Third Party	-	An individual, group or person who have no direct relationship with Q.P.
Toxic Atmosphere	-	An atmosphere containing material which may cause injury or death to personnel exposed to it without adequate protection.
TWA	-	ACGIH - term applied to the concentration for a normal 8-hour workday, 40-hour week, to which it is believed nearly all workers may be repeatedly exposed, day after day, with no adverse effect.
Unrestricted area		An unrestricted area is defined as the QP area adjacent to a restricted area.
VDU	-	Video Display Units means any alphanumeric or graphic display screen, regardless of the display process employed.
Vibration	-	Typically an oscillatory motion of a mechanical system or body. The magnitude of vibration can be described by the displacement (mm) of this motion above some reference point or, alternatively by the rate of change of this displacement [i.e. velocity (m/s) or acceleration (m/s ²)] with reference to time.
Zone 0	-	A zone in which a "flammable atmosphere" is continuously present or present for long periods
Zone 1	-	A zone in which a "flammable atmosphere" is likely to occur under normal operating conditions
Zone 2	-	A zone in which a "flammable atmosphere" is not likely to occur under normal operating conditions and if it does occur, will only exist for a short period.

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4.0 GENERAL GUIDELINES ON HSE MANAGEMENT

4.1 CONTRACTOR'S HSE MANAGEMENT SYSTEM

Every Contractor engaged to work for or provide services for QP, shall have its own HSE Management system (HSE-MS) whose requirements are equivalent to, or exceed but are compatible with those of QP. It is preferable if the Contractor's HSE Management system or parts of it are certified to an internationally recognized standard (e.g. ISO14001 for the environmental part) or an assessment series (e.g. OSHAS 18001 for the Health and Safety part). As a minimum, the Contractor's HSE management system shall address the following main elements of an HSE-MS:

a) Leadership and commitment

The system shall define how senior management sets personal examples, demonstrates involvement /participation, and communicates to employees, on HSE

b) Policy and Strategic Objectives

Contractor senior management shall define and document its HSE Policy and strategic objectives. The HSE policy of a Contractor is a statement of intentions and principles of action and expresses the vision of the Contractor in HSE matters. HSE strategic objectives are a description of the HSE performance the Contractor wishes to achieve based upon the Contractor's vision on HSE. The Contractor shall have HSE Policy and strategic objectives that:

- Are relevant to the organization's activities, products and services;
- Are consistent with, and are of equal importance to its other business policies and strategic objectives;
- Are readily available to the organizations staff and all concerned parties;
- Commit the Contractor to meet or exceed all relevant regulatory and legislative requirements
- Are consistent with those of QP
- Commit the Contractor to reduce the risks and hazards to health, safety and the environment to levels which are as low as reasonably practicable; and
- Provide a framework for setting and reviewing HSE objectives and targets that commit the Contractor to continuous efforts to improve HSE performance

d) Organization, responsibilities, resources, standards and documentation

Contractors shall define the responsibility for developing and maintaining the HSE-MS and for establishing HSE accountabilities at each level of the organization. HSE competency levels shall be defined and training provided to ensure that all employees are aware of, and understand, the HSE Policy, HSE management, legal and other requirements, as well as their individual roles and responsibilities with respect to HSE. HSE shall be the responsibility of line management at all levels of the Contractor's organization, and it shall not be delegated to HSE Advisers. Set standards must be documented and communicated to facilitate consistent application and auditing.

e) Hazards and Effects Management

The HSE-MS shall describe how hazards and effects are to be identified, assessed, controlled and how recovery in the event of loss of control will be carried out. It shall

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also describe how the adequacy of existing controls is evaluated and additional methods for managing / minimizing the HSE risks are identified and implemented.

f) Planning and Procedures

As part of its HSE-MS, the Contractor must have HSE plans that describe how the controls for hazards and effects management are implemented. The plans should allocate sufficient human, physical and financial resources toward improving HSE performance. The Contractor must also have and use a comprehensive set of procedures such as change management procedures, incident management procedure, and emergency response procedures. Procedures and work instructions are required to ensure that activities and tasks are carried out in a manner that meets specified standards. The Contractor should maintain procedures to ensure that HSE-critical facilities and equipment which it designs, constructs, procures, operates, maintains and/or inspects are suitable for the required purpose and comply with defined criteria.

g) Implementation and Monitoring

Contractor shall adopt a structured approach and ensure that activities and tasks are always conducted according to procedures and work instructions developed at the planning stage (or earlier) and in accordance with HSE policy. It must define how HSE performance is monitored, recorded, the criteria for measuring HSE performance and how corrective action is taken. Performance monitoring should include both leading indicators and reactive (lagging) indicators. There shall be communication and consultation on HSE as well as document and data control. Competent personnel shall be used to execute tasks.

h) Audit and Management Review

Contractor shall define the basis for HSE auditing and management reviews of the effectiveness of the HSE-MS or part thereof. There must be audit plans, protocols for conducting the audit, reporting of findings, and tracking of recommendations for improvement. Contractor Management shall at intervals, review the effectiveness and suitability of the HSE-MS. Such reviews shall be fed back to improve HSE policy and objectives, organization and resource allocation, and overall HSE performance.

4.1.1 SMALL CONTRACTORS' HSE MANAGEMENT SYSTEM

Notwithstanding the provisions in section 4.1 above, small contractors who may not have a formalized HSE Management System, shall still have a basic understanding of managing HSE in their operations and be prepared to provide and demonstrate a simple but effective management system. They must be able to make hazard assessments, apply and enforce controls to manage residual HSE hazards and effects, apply location-specific and State HSE laws and regulations correctly. They shall also demonstrate ability to respond effectively to emergency situations. "Small Contractors" in this context means Contractors that are engaged in work or services involving low HSE risk in non-hazardous areas e.g. provision of office cleaning services .

4.2 MANAGEMENT OF SUB-CONTRACTOR HSE

Main Contractors shall be responsible and shall be held accountable for the HSE performance of their sub-contractors. They shall submit to the Contract Holder, the list of all sub-contractors to be engaged in the execution of the work or services and shall

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ensure that sub-contractors comply with all QP HSE requirements as well as relevant State Laws and regulations. The main Contractor shall also be required to demonstrate that HSE management and control in each sub-contractor organization meets QP expectations.

4.3 HSE PRE-QUALIFICATION

QP shall, at its discretion, carry out HSE pre-qualification of potential tenderers to determine in terms of HSE, their suitability or otherwise to tender for and be awarded a contract. The Contractor shall make available all necessary HSE information requested to aid the pre-qualification. In addition to the submitted information, QP shall make use of past HSE performance information that may be available in its database, concerning that particular Contractor, to reach a decision.

4.4 REQUIREMENT FOR CONTRACT HSE PLANS

4.4.1 PRELIMINARY CONTRACT HSE PLAN

Contractor shall develop a Preliminary Contract HSE Plan as part of its tender submission to demonstrate that all hazards associated with the work or services have been identified and that adequate control and recovery measures have been determined. The Preliminary Contract HSE Plan shall cover the contract phases from mobilization through execution, de-mobilization and site restoration, and clearly indicate the specific procedures and standards to be followed during each phase of the contract. In its Preliminary Contract HSE Plan the Contractor shall:

- Describe its HSE Management System;
- Demonstrate its full understanding of the statement of HSE requirements for the contract
- Demonstrate that it has independently identified and assessed the hazards / risks anticipated during the execution of the contract;
- Set HSE objectives and targets for the contract with the overall aim to ensure no harm to people, assets, and the environment
- Describe how it will manage the specific hazards / activities anticipated during the execution of the contract;
- Describe how compliance with QP's requirements will be measured and achieved;

4.4.2 CONTRACT HSE PLAN

If awarded the contract, the Contractor shall, after a complete detailed analysis of all hazards, develop a detailed Contract HSE Plan by updating its Preliminary Contract HSE Plan, and correcting any errors or deficiencies that have been identified. In its Contract HSE Plan the Contractor shall:

- Update the information in its Preliminary Contract HSE Plan as required;
- Incorporate the information from its detailed hazard assessment;
- Identify all HSE-related activities to be performed during the contract, including the identification of action parties and specification of completion dates;
- Provide the number of HSE Advisers to be employed on the contract, including a description of their roles, responsibilities and deployment; and
- Provide a description of Contractor's HSE audit, inspection and monitoring programs for the contract.

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- Include HSE training/competency matrix
- Include occupational health and medical fitness programs
- Include detailed emergency response plans. This shall include H2S contingency plan for fieldwork
- Include Method Statements detailing how various activities and tasks involved in the contract will be carried out safely and in an environmentally sound manner

4.5 HAZARD IDENTIFICATION, RISK ASSESSMENT AND CONTROL

Contractor shall have procedures and shall ensure that all HSE hazards and effects relating to the work or services are identified, the risk assessed, and controls and recovery measures put in place. Job Hazard analysis and Health risk assessments shall be conducted as necessary to ensure protection of the safety and health of personnel and assets. Environmental aspects shall be identified and their potential impacts assessed and mitigated.

4.6 APPOINTMENT OF CONTRACTOR'S KEY HSE PERSONNEL

a) Following the award of a contract, Contractor shall submit to the QP Contract Holder the Curriculum Vitae of the personnel he wants to appoint to manage HSE on the project such as HSE Officers and Contractor Site representatives. QP shall review the submitted CV's and interview the HSE Officers to determine their suitability for the intended roles. A QP administered HSE competency test may form part of the interview. Only those found suitable and approved by QP shall be engaged as HSE Officers on the project. Replacement of an HSE officer on a project shall also be subject to QP approval.

b) The following guidelines shall be applied for appointment of HSE Officers unless specified otherwise by the tender document:

- The number of HSE Officers appointed shall depend on the risk level, size of the workforce, and location of the work or services. Every Contractor or sub-contractor who employs more than 20 people to carry out work on a worksite shall appoint an HSE officer/supervisor, who shall spend considerable time (at least 5 hours per day) exclusively on HSE supervision and on promoting good HSE practices at the site. The main Contractor shall appoint full-time HSE personnel (including HSE Officers). For low risk contracts, the main Contractor shall appoint a part-time site HSE Officer or supervisor who shall spend a considerable time (at least 15 hours per week) exclusively on HSE supervision at the site.

- Hazardous area: One additional safety officer may be considered while adding 20 persons to a work site.

- Non Hazardous area: One additional safety officer may be considered while adding 30 persons to a work party.

4.7 HSE IN KICK-OFF MEETINGS

Following award of the contract, QP shall hold a Kick-off meeting with the Contractor to, amongst other things, discuss HSE pre-execution requirements (including deficiencies in the Contract HSE plan that need to be addressed) and to confirm Contractor's full understanding of the HSE risks and his capability to effectively execute the HSE plan. The Contractor shall be represented at this meeting by its senior management including at least, the Contractor's Manager, Contractor's Site Representative and Contractor's senior HSE Adviser. If the Contractor is to mobilize

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first at a remote location before mobilizing locally to site, two meetings shall be held namely: the initial kick-off meeting at the Contractor's base office, and then the follow up local kick-off meeting. Sub-Contractors, if already identified, shall be represented at the kick-off meeting.

4.8 HSE INDUCTION, TRAINING, AWARENESS AND COMPETENCE

4.8.1 HSE INDUCTION

Contractor shall ensure that all its employees including those of sub-contractors undergo an HSE induction or orientation before being allowed to work on QP location. The induction shall include, amongst other things such as specific contract and site HSE issues, the contents of this document. Contractor shall keep records showing that each employee has attended an HSE induction session.

4.8.2 HSE TRAINING

In view of the hazardous nature of working in the oil and gas industry, Contractor shall, at its own cost, ensure that all employees including sub-contractors undergo HSE training adequate for health, safety and environmental protection while engaged in works or services for QP. Such training shall include but not limited to the following courses/training as required:

- H2S & Breathing Apparatus (mandatory)
- Permit-to-Work Computer based Training
- Permit-to-work workshop
- Gas Testing
- Confined Space entry
- Job Hazard Analysis
- Summary incident investigation
- Detailed Incident investigation
- Manual Handling
- Basic Fire Fighting
- Electrical Safety
- Chemical Handling
- Safe Plant Maintenance
- Helicopter Underwater Escape Training (HUET) (mandatory for offshore)
- Tropical Basic Offshore Emergency Training (T-BOSIET)
- First Aid Course
- Hazard Management Training
- IOSH Managing Safely
- IOSH Construction Safety
- NEBOSH General Safety Training
- Defensive Driving
- Environmental Management course
- Environmental Awareness Course
- Waste Management Course

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4.8.3 HSE COMPETENCE

Contractors shall have an HSE competence development programme to, on an ongoing basis, improve awareness, skills and knowledge of HSE protection by the workforce, particularly in its areas of business.

Foremen, Supervisors and the Contractor manager should all be regarded as key personnel and must have some HSE training including some of the courses indicated in 4.8.2 above.

4.8.3.1 COMPETENCE OF HSE ADVISERS

a) All Contractors' HSE Advisers shall undergo an interview and/or successfully pass a competence assessment test administered by QP. Attainment of at least one of the following qualifications or approved equivalent is recommended for all HSE Advisers:

- National Examination Board in Occupational Safety and Health (NEBOSH) Certificate or Diploma
- IOSH - Member of the Institution of Occupational Safety and Health
- Diploma in Occupational Safety and Health Management, or Member of International Institute of Risk and Safety Management (MIIRSM)
- RSP - Registered Safety Professional

An HSE Adviser holding higher qualifications not currently recognized by QP or with proven extensive experience may be exempted from some of the above requirements at the discretion of QP.

b) HSE Advisers shall also be knowledgeable in specific relevant safety techniques and have a working knowledge of the legal and contractual HSE requirements that must be met. They must have the ability to communicate effectively at all levels of the Contractor's organization. All HSE Advisers shall demonstrate competence in the following areas:

- Ability to communicate effectively in written and spoken English;
- Ability to conduct HSE audits;
- Training ability in incident prevention;
- Ability to conduct incident investigations and identify underlying causes;
- Knowledge of health requirements, rules and regulations, and ability to monitor compliance;
- Knowledge of environmental requirements, rules and regulations, and ability to monitor compliance and identify ways of reducing environmental impact;
- Be fully conversant with techniques used in the management of hazards and advising on suitable measures which can be used for preventing and ultimately recovering from accident situations;
- Be able to develop and facilitate implementation of Contract HSE Plans;
- Be conversant with QP HSE policies, standards and procedures including emergency procedures.

Contractors shall demonstrate in the Tender document, through submission of CVs, that they are able to provide HSE Advisers that satisfy these minimum competence requirements.

c) In addition, Contractor's HSE officers shall be required to attend at least some of the following or equivalent of QP approved HSE related courses:

- Hydrogen Sulfide (H₂S) and Breathing Apparatus training (mandatory)
- Helicopter Underwater Escape Training (mandatory for offshore)

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- Permit-to-work Course
- Job Hazard Analysis
- Hazard Management Training
- Summary incident investigation
- Detailed incident investigation
- IOSH Managing Safely
- NEBOSH General Safety Training
- First-Aid Course
- Environmental Management course
- Environmental Awareness Course
- Waste Management Course

4.9 PRE-MOBILIZATION INSPECTIONS

Contractor shall make available its major equipment/plant such as earth-movers and lifting equipment to enable concerned QP approved parties to conduct pre-mobilization checks to determine the suitability of the equipment for use in QP operations and projects. Lifting equipment shall be inspected, certified and verified in accordance with the QP Lifting Equipment Technical Regulations (DOC. NO: QP-REG-Q-001). Only equipment and plant found suitable shall be mobilized and used.

For certain category of work in high risk environments (e.g. offshore work), equipment, hand tools, PPE, and scaffolding materials shall be inspected by QP HSE Offshore department and clearance certificate issued prior to mobilization to offshore work sites. Without this clearance certificate, Contractor's equipment/ materials cannot be dispatched to offshore production and construction project locations.

4.10 PRE-EXECUTION AUDIT AND ISSUANCE OF WORK COMMENCEMENT CERTIFICATE

A Pre-execution HSE audit shall be conducted to determine whether or not the Contractor has met all the pre-execution targets set in the contract HSE specification, reflected in the contract HSE Plan and agreed in the kick-off meeting. If all the pre-execution HSE targets have been met a Work commencement HSE certificate (HSEFM-QP-01) shall be issued jointly by the Contract holder and concerned QP HSE Adviser indicating authorization for the works/services to start. No work shall be commenced on QP location without an approved HSE work commencement certificate being issued. A copy of the certificate shall be available at the worksite throughout the project or work execution period.

4.11 HSE PERFORMANCE MONITORING AND REPORTING DURING CONTRACT EXECUTION

- a) During contract execution, Contractor shall deploy adequate resources, as determined by QP, to implement and monitor implementation of the approved Contract HSE Plan. Any proposed changes to the Contract HSE Plan shall be formally brought to the attention of the QP Contract Holder and concerned QP HSE Adviser for their review and approval. HSE deviations approval form (HSEFM-QP-04) in Appendix 2 shall be used for this purpose.
- b) The Contractor shall submit periodic HSE performance reports weekly, monthly, quarterly and yearly as appropriate. These reports shall consist of both leading (proactive) indicators such as number of HSE meetings/toolbox talks, unsafe

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acts/conditions, inspections/audits, emergency response drills as well as the reactive indicators. The reactive indicators shall include exposure hours, incidents and their consequences such as Fatality, lost time injuries, lost workday cases, Medical treatment cases, occupational illnesses, Nearmisses, total recordable cases, and the relevant incident frequency rates as determined from time to time by QP. Environmental incidents such as oil/chemical spills shall also be reported (see section 7.3). In addition if the project involves hazardous materials, the waste management (handling, transport and proper disposal) of these materials shall be reported. If applicable the amount of fuel used for combustion as well as flaring and venting of gases shall be reported in the performance reports. The form HSEFM-QP-02 (Appendix 3) shall be used to submit the Contractor's monthly HSE Performance report.

4.12 INCIDENT REPORTING AND INVESTIGATION

Contractor shall immediately report and investigate all HSE incidents, including near-misses, which occur during the course of the contract in accordance with the QP Corporate Procedure for incident management (QPR-STM-001).

They shall notify QP immediately of any HSE incidents, even if no injury occurs and provide QP with a written report within 24 hours. Contractors shall investigate all the HSE incidents beyond immediate causes to identify the root causes. The Contractor's written investigation report shall include the root causes of the incident and a corrective action plan to prevent further occurrence of similar incidents. A doctor's release for injuries requiring medical treatment by a physician shall be provided before the injured personnel return to work.

In addition, the Contractor shall notify and invite concerned QP Regional/Operational HSE Adviser to be present while investigating incidents that occur within Contractor and sub-contractor's activities while on QP premises.

4.13 HSE COMMUNICATION

To ensure effective communication on HSE issues, Contractor shall conduct various types of meetings and also display HSE information display boards and notices/signs at sites. Everyone shall attend and participate in all HSE meetings unless specifically instructed otherwise. A record of these meetings shall be kept that includes date, location, names/signatures of attendees, and topics covered. The following types of HSE meetings shall be held as a minimum:

- a) **Periodic HSE Meetings:** Regularly scheduled (minimum monthly) HSE meetings shall be conducted by each Contractor (including sub-contractors) and attended by all personnel. Topics covered may include Corrective actions from audits/inspections, learning points from incidents, regulatory issues, HSE training, HSE trends that have been identified, and general HSE issues
- b) **Toolbox talk or Pre-job meeting:** Contractor and its sub-contractors shall hold toolbox talks or pre-job meetings on site before the start of any work. This shall discuss the job steps, the specific hazards pertaining to the job, the controls including personal protective equipment needed, responsibilities and skills of the people involved, the materials and equipment to be used, the environment (e.g. weather condition) emergency evacuation, and other jobs that may be going on at the same time (simultaneous operations). Additional meetings shall be held in the event that a change in job scope occurs. A record of the toolbox talks shall be kept in a logbook.

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4.14 HSE INSPECTIONS AND AUDITS

- a) Contractor shall conduct own HSE inspections and audits to identify deficiencies in its HSE management system and take corrective action to improve the management of health, safety and environmental issues in the contract, and to comply with these regulations.
- b) Contractor shall also subject itself and its sub-contractors to inspections and audits conducted by QP personnel and take all necessary steps to implement the resulting recommendations.
- c) Contractor shall allow QP representative access at any time to plant, equipment, personnel and records when requested, to carry out formal investigations of compliance with regulations, procedures, and safe work practices.

4.15 EMERGENCY RESPONSE

Contractor shall have an emergency response plan, procedures and arrangements which shall tie in seamlessly with QP's procedures for the location in which the work or services are being executed. The Contractor's Emergency Response procedures shall include Medical Emergency Response, Fire emergency response, and response to emergencies relating to environmental incidents. They shall cover all foreseeable health, Safety and environment scenarios and must be tested periodically by way of drills and exercises

The Contractor shall follow the QP Contingency Plan and Emergency Procedures during the period of the work and shall ensure that its staff are fully familiar with the use and location of the essential emergency equipment, such as Breathing Apparatus, life jackets, fire extinguishers, fire hoses etc.

4.16 HSE INCENTIVE SCHEMES

Contractors shall have in place HSE incentive schemes to motivate their staff towards continuously improving its HSE performance. The incentive schemes shall:

- not discourage or suppress the reporting of incidents
- be proactive and therefore reward effort, e.g. audits and follow-up rather than 'after the event' statistics
- be culturally adapted to the local environment.
- Motivate personnel to change those behaviours that detract from good HSE performance
- Be consistently and fairly applied without discrimination

4.17 DEMOBILIZATION AND SITE RESTORATION

Upon completion of the Work or Services, the Contractor shall de-mobilize his equipment, facilities and personnel. Contractor shall restore, to the satisfaction of QP, the site including any QP concession area and any premises thereon used by the Contractor to perform the work or Services. Refer also to Section 7.1 of this document.

4.18 HSE PERFORMANCE REPORTING AT CONTRACT CLOSE-OUT

Upon completion of the restoration of the site, the Contractor shall submit to QP its overall HSE performance report (End of contract HSE performance report) covering the whole contract and highlighting successes, lessons learned and areas for improvement

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4.19 HSE ROLES AND RESPONSIBILITIES

Roles and responsibilities of QP and Contractors regarding HSE management in contracts are summarized in Fig. 1 and Table 1 in the introduction to this document. Contractor management, Contractor key personnel as well as the general workforce have a duty to protect the health and safety of everyone that may be affected, the facilities on QP sites where they work, as well as to protect the environment. They shall conduct their activities in compliance with these regulations and their specific HSE management responsibilities shall be as detailed in Appendix 1.

4.20 COMPLIANCE WITH NATIONAL AND INTERNATIONAL LAWS, REGULATIONS, CONVENTIONS AND PROTOCOLS

Contractor shall comply with and shall be held accountable for non-compliance to each and every relevant HSE related Qatari law and/or regulation including any applicable International Conventions and Protocols duly ratified by the State of Qatar.

4.21 CONSEQUENCES OF NON-COMPLIANCE

If a Contractor fails to comply with any of QP's HSE requirements, QP shall at its discretion, take all necessary measures in accordance with the rights and remedies available under the Contract or at law, to ensure compliance, including but not limited to: providing notice to immediately remedy any default, ceasing performance of the work or services, removing Contractors personnel, equipment and materials from the work site, closing down Contractor's worksite, and termination of the Contract.

4.22 GENERAL SPECIFICATIONS FOR CONTRACTOR COMPOUNDS, ACCOMMODATION, AND PORTACABINS

Contractor shall be required to, where necessary, provide accommodation for his own personnel and facilities in accordance with the terms of the contract. The Contractor compounds and accommodation shall, for the HSE reasons, meet the requirements stated in Appendix 4A of this document. The specification for Contractor Porta-cabins shall be as stated in Appendix 4B of this document.

4.23 CONTRACTOR'S PERSONNEL WORKING AT OFFSHORE LOCATIONS

- 4.23.1 All Contractor personnel travelling to work or visiting offshore shall undergo training in accordance with the QP procedure for offshore training (IP-SF-020). They shall be in possession of a valid H2S/ BA Certificate and HUET/Basic Sea survival Certificate.
- 4.23.2 Contractor shall provide relief and cover (Field Break) for Contractor personnel in order that the duration of their continuous stay does not exceed ninety (90) calendar days at Halul or 60 Calendar days on a production station. It is understood, however that Contractor personnel after elapse of minimum of seven (7) day's mandatory rest onshore, may resume work on any offshore locations.
- 4.23.3 Contractor shall keep record of all its personnel at offshore locations to show that the personnel are demobilized from site and provided adequate rest days prior to re-mobilization to any offshore locations based on the contract terms and conditions.
- 4.23.4 Working hours shall be regulated for Contractors personnel directly exposed to sunlight during peak summer months to avoid heat stress related incidents.
- 4.23.5 Contractor shall ensure that Contractors personnel shall attend a mandatory computer based Permit to Work System (PTW) training conducted by QP for appropriate level.

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5.0 OCCUPATIONAL SAFETY REQUIREMENTS

5.1 GENERAL OCCUPATIONAL SAFETY REQUIREMENTS

5.1.1 PERSONNEL CONDUCT

The Contractor shall be responsible and held accountable for controlling the actions of their employees while engaged on QP business. Only well trained personnel with HSE-friendly behaviour would be allowed to work on QP premises. Contractor employees shall follow all QP HSE policies and procedures, applicable State HSE Laws, and the rules and regulations in this document while working on the QP contract.

While on QP premises, each Contractor employee shall conduct themselves in a professional manner - horseplay, practical jokes, or any type of harassment is not allowed. This includes sexual harassment, which will not be tolerated. All Contractor employees are entitled to a workplace free from harassment which includes unnecessary and unwelcome bodily contact, threats, racial slurs and other verbal or physical contact which interferes with an individual's work performance or creates an intimidating, hostile or offensive working environment.

Sanctions shall be applied or an individual Contractor employee may be requested to leave QP premises and not return if QP rules and regulations are not followed.

5.1.2 NO SMOKING POLICY

In accordance with the State of Qatar Law No. 20 of Year 2002 banning smoking in all ministries and public institutions and considering the health and safety hazards associated with smoking, QP strictly prohibits smoking in all its premises and places of work both during and after working hours. Contractor shall ensure that all its employees comply with this policy.

5.1.3 SAFE TOOLS AND EQUIPMENT

The Contractor shall, at its own expense, provide adequate tools and equipment that are safe enough to use, that are of the approved type, and that are up to the amount that is required for the execution of the contract works or services. The Contractor shall maintain these tools and equipment in a professional manner as dictated by legal and industry standards. In addition, the Contractor shall keep up-to-date records of all the said tools and equipment.

5.1.4 HOUSE-KEEPING

Good housekeeping is essential so work may proceed in a safe and orderly manner. The Contractor shall ensure that the site of the works or services is kept free of surplus, waste or redundant materials and shall maintain a clean and tidy site throughout the duration of the work. All walking areas, emergency exits, work areas, handrails, equipment, tools, fire-fighting and life-saving equipment, etc. shall be kept clean and free of obstructions at all times.

5.2 PERMIT TO WORK

Qatar Petroleum operates a permit-to-work system aimed at safeguarding its assets by ensuring that hazards and risks associated with activities are identified and controlled. Permit-to-Work is required in all QP restricted and unrestricted areas. The

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Contractor shall ensure that its supervisors and employees are fully conversant with and comply with all the requirements of the Permit-to-Work-System.

For every job of a routine or non-routine nature, Contractor shall obtain permit-to-work from competent concerned QP personnel. The permit-to-work shall authorize and indicate who, when and how the activities will be carried out with precautionary measures in order to ensure that the job is completed in a manner to prevent HSE incidents. Permits shall be obtained for all jobs that involve excavation, hot-work, confined space entry, use of radioactive substances, electrical work, hydro-testing, scaffolding, working on radio towers and masts at QP locations, and any other job as specified by the QP and location-specific permit-to-work systems.

5.3 PERSONAL PROTECTIVE EQUIPMENT

The Contractor shall, at its own expense, supply its personnel assigned to the work site with adequate personal protective equipment including clothing which shall be maintained in good condition or replaced as required. These shall be worn on all relevant occasions as dictated by the hazards of the job at hand, and as indicated by notices, instructions and good practice. Loose or floppy clothing is prohibited around rotating or moving equipment. Rings, neck chains or loose jewelry shall be removed while engaging in manual labour. For further details, refer to the QP document: Personal Protective Equipment (IP-SF-001).

5.3.1 STANDARDS FOR PERSONAL PROTECTIVE EQUIPMENT

The personal protective equipment shall meet an international standard or shall be equivalent to the following QP requirements for Personal Protective Equipment (ref. IP-SF-001):-

Personal Protective Equipment	Standard
Foot Protection	BS EN 345, 346 BS 5145, 6159 BS 7193 (Slip on Rigger boots for offshore activities)
Body Protection	BS EN 469, 531, BS EN 470-1 BS 6408 (Yellow colour-Full sleeve cotton coverall for offshore activities)
Hand Protection	BS EN 374-1, 388, 407, 420 BS 697
Respiratory Protection	BS EN 143 BS 7355 / ANSI.Z 88.2
Head Protection	BS EN 397 / ANSI Z 89.1
Hearing Protection Ear Muffs Ear Plugs	BS EN 352-1, 352-2
Eye and Face Protection	BS EN 166, 169 / ANSI Z 87.1
Fall Protection	BS EN 353-1, 353-2, 354, 355, 358, 360, 361, 362, 363, 365, BS 3913, ANSI Z359.1
Winter Jacket	Nomex Winter jackets during winter time

Table 5.1: Specification for Personal Protective Equipment

5.3.2 HEAD PROTECTION

An approved plastic hard hat complying with standard listed in clause 5.3.1 shall be worn by all Contractor employees working in QP field operations at all times except

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while in vehicles, living quarters, offices and control rooms. Aluminium type is prohibited

5.3.3 EYE AND FACE PROTECTION

Safety glasses with side shields shall be worn, as required, by all contractor employees working in QP field operations except while in vehicles, living quarters, offices and control rooms. During night operations, only clear or amber colored safety glasses shall be worn. Contact lenses are allowed to be worn with eye protection except while using a respirator. Safety glasses are mandatory at all offshore locations.

When performing work where safety glasses do not provide adequate protection, such as use of high-pressure washer, handling chemicals, etc. other appropriate eye protection such as goggles shall be worn. Hard hats with full-face shields are required for all buffing and grinding operations.

Welding Specific - Welding hoods shall be used during all arc-welding operations. Goggles or other suitable eye protection with appropriate filter lenses shall be used during all gas welding, gas cutting or brazing operations. All filter lenses and plates used in welding hoods and goggles shall meet the test for transmission of radiant energy prescribed in ANSI Z87.1.

Welders' helpers and entry attendants shall use appropriate eye protection. When not engaged in a welding or cutting activity, safety glasses with side shields will be worn by welders and welders' helpers.

5.3.4 FOOT PROTECTION

Foot protection shall be in accordance with the classification stated in clause 5.3.1 above. However, steel toe or a non-conductive safety toe shoes or boots with non-skid soles shall be worn by all Contractor employees working in QP work locations at all times except while in vehicles, living quarters, offices and control rooms.

5.3.5 FALL PROTECTION

Fall protection equipment shall be worn when working or climbing more than 1.8 meters above an established working surface (ground, deck or water level); when specified on a warning sign; or when an immediate danger exists below the working surface regardless of height and no guard rails are present. All components of the fall protection system must comply with the standards specified in 5.3.1 above. In addition, Safety Belts, Harness and Lines shall also comply with BS 1397, self locking safety anchorages with BS 5062 and safety nets with BS 3913.

Any employee working or climbing more than 1.8 metres (6 feet) above an established working surface (ground, deck or water level) shall use one of the following means for primary fall protection:

- The preferred system for primary fall protection consists of:
 - (a) a full body harness; (b) shock absorber; (c) clevis with cotter pin locking device or snap hooks with an inward moving, self-closing, and self-locking keeper (latch or gate) so that keeper remains closed and locked until unlocked and pressed open for connection or disconnection; and (d) nylon lanyard (steel or rope lanyards are not allowed) attached to a stationary support. The lanyard will be attached to a stationary support in a manner that will prevent a free fall of more than 1.8 metres (6 feet) or

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even less than 1.8 metres (6 feet) if an immediate danger exists below the working surface regardless of height.

- A retractable lifeline (inertia reel) attached to a full body harness may be used with appropriate QP approval.
- A cable-grabbing device attached to a static line may be used with appropriate QP approval.
- When ascending or descending a derrick ladder, and using the derrick climbing line run through a fall arresting device and connected to a counterweight, the derrick belt must be used in conjunction with the full body harness. The derrick belt should be worn over the full body harness and attached to the derrick climbing line.
- A double lanyard climbing method shall be used with appropriate QP approval if none of the above-described primary fall protection devices are available.
- Fall protection equipment shall be certified as required by QP Lifting Equipment Technical Regulations (Doc. No. QP-REG-Q-001).

5.3.5.1 USE OF LADDERS

A ladder shall be used to reach objects or areas not readily accessible to the employee's reach but the use of ladders in a vertical or horizontal position as scaffolding is forbidden.

- All ladders shall be inspected before use. Any damaged or unsafe ladders shall be tagged and taken out of service. Stationary ladders with missing, broken or loose steps shall be taken out of service until repaired. No ladders with treads nailed to the stringers or which are in any other way faulty or unsound shall be used.
- All ladders shall be factory made and shall be of sound construction and shall be inspected prior to each use. If the work is being done in and around electrical equipment and/or cables, only wooden (non-conductive) ladders shall be used.
- Both hands shall be kept free for climbing, descending and performing work on a ladder. No carrying of hand tools, grease guns, etc. while climbing on ladder. Articles, which are too large to be carried in a pocket or on a belt, shall be lifted and lowered by a hand line. The employee should not rush and should only take one step at a time.
- Only one person at a time shall be on the ladder.
- Portable ladders shall have anti-slip safety feet and be secured at the top before work begins in order to prevent the ladder from shifting. A second employee should hold the ladder until the climber can secure it at the top. In addition, portable ladders should be set at the correct angle before use. Where possible, angle of 70 degrees or 0.3 metres (1 foot) out at bottom for every 1.2 metres (4 feet) of ladder height to ensure stability.
- Every ladder shall, where practicable, extend for at least 1.0 m (3 ft 6 inches) above the landing place, or above the highest rung reached by the feet of the person using it.
- Only ladders that are not electrically conductive (wooden ladders or ladders with fiberglass rails) shall be used to perform electrical service work.
- Unless QP has granted prior written consent no ladder shall exceed 3.7 m (12 ft) in height. Stationary ladders with a height greater than 1.8 metres (6 feet) shall be caged or fall protection such as an inertia reel, static line with cable-grabbing device or double lanyard climbing method shall be used.
- As a safety precaution, light alloy and aluminium ladders and scaffolding shall not be used in Zone 1

hazardous areas. This is because ignition of gas-air mixtures can occur as a result of impact or rubbing of metals. Impact between light metal alloys and metals having an

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oxygen containing surface (rust, painted with red lead) can produce sparks of high energy due to the thermite reaction, which may ignite a flammable mixture.

5.3.5.2 CARE OF FALL PROTECTION EQUIPMENT

Fall protection devices such as full body harnesses, lanyards, static lines with cable-grabbing device, and inertia reels shall be inspected before each use and replaced if necessary. Fall protection equipment, which has been involved in a fall, shall be replaced.

Full body harnesses and lanyards shall be kept clean and never laid down in drilling mud, water, dirt, etc. All fall protection equipment shall be placed in a proper storage area when not in use. Only approved cleaning products for full body harnesses and lanyards shall be used in order not to diminish the rated capacity of the device.

5.3.6 HAND PROTECTION

Appropriate gloves shall be worn when the hands are exposed to hazards such as cuts, punctures or abrasions (cloth, leather or leather-palmed gloves); when handling chemicals or hazardous materials where absorption is a concern (rubber gloves); and when performing electrical work (gloves for electrical work). The hand protection shall comply with the standards listed in clause 5.3.1.

5.3.7 RESPIRATORY PROTECTION

Respiratory protection shall be worn by Contractor employees while working in areas where respiratory hazards exist and are not controllable by other means. Some respiratory hazards which may be encountered include hydrogen sulphide (H₂S), chlorine, galvanized pipe welding, dust, sand blasting, or insulation work where Man-made Mineral Fibers (MMMMF) and asbestos may be present.

Contractor employees using respiratory protection shall meet the following requirements:

- Shall meet medical requirements for using the equipment;
- Shall receive training on the proper use, fit and maintenance of the respiratory equipment;
- Shall not have facial hair that will interfere with the seal of the face piece;
- Shall not wear eye glasses that interfere with the seal of the face piece;
- Shall not wear contact lenses while using a respirator.
- Approved full face mask with positive pressure type only to be used in toxic gasses

Air purifying respirators shall not be used in activities involving immediately dangerous to life (IDLH) conditions. Supplied air respirators shall be used instead.

5.3.8 HEARING PROTECTION

Contractor Personnel working in or near high-noise level areas or performing work, which generates high noise levels, shall wear approved hearing protection. Such protection shall have a sufficient Noise Reduction Rating (NRR) to reduce noise exposure to permissible levels (85 dBA). The hearing protectors shall comply with BS EN 352 or equivalent. Hearing protection shall also be worn on all helicopter flights.

5.3.9 PERSONAL FLOATATION DEVICES

USCG/SOLAS approved types of Personal Flotation Devices (PFD's), such as life jackets or work vests, shall be worn and properly secured at all times by Contractor

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personnel riding in a boat, making boat/platform transfers, and working in areas above water (such as barges, bottom walkways and decks of platforms, etc.) without guard rails. Personnel riding in a helicopter over water shall wear inflatable PFD's or life jackets.

5.4 LIFTING EQUIPMENT

All lifting equipment and all parts and working gear thereof, both fixed and mobile shall be of good construction, sound material and free from defects and shall be maintained and operated to comply with QP standards particularly the QP Lifting Equipment Technical Regulations (DOC. NO: QP-REG-Q-001). Contractor is hereby referred to the technical regulations for details of the requirements in this section.

5.4.1 LIFTING EQUIPMENT CERTIFICATION

It is QP's mandatory requirement that all Contractors or suppliers undertaking QP work shall have their lifting equipment and lifting equipment personnel certified by a QP approved certification authority before work commencement of lifting operations and such lifting equipment shall be inspected/re-inspected and certified at regular intervals in accordance with QP-REG-Q-001. Certificates shall be approved by QP Facilities Integrity division of the Corporate HSE Support department (STI) in compliance with the lifting regulations

5.4.2 COMPETENCE AND CERTIFICATION OF LIFTING EQUIPMENT PERSONNEL

All Contractor's lifting equipment personnel such as Rigging Supervisors, Riggers, Crane Operators and Forklift operators shall be trained, certified and possess at least the minimum qualifications stated in the QP Lifting Equipment Technical Regulations (Doc. No. QP-REG-Q-001). Their responsibilities and duties shall also be as stated in the technical regulations.

5.4.3 SAFE WORKING LOADS

Every lifting appliance and piece of lifting gear should be:

- Clearly marked with its Safe Working Load (SWL) or loads as shown on the latest record of thorough examination; and
- No lifting appliance or piece of lifting gear should be used for any load exceeding its safe working load marked upon it other than when undergoing a test by a competent person.

Cranes with fixed or derricking jibs should be fitted with effective automatic safe load indicators which should be;

- Provided with appropriate visual and audible signals;
- Properly maintained;
- Tested by a competent person after the erection or installation of the crane.

5.4.4 GENERAL REQUIREMENTS FOR LIFTING EQUIPMENT

a) All Lifting Appliances shall be constructed, installed, tested, operated and maintained in accordance with the specified Standards and as specified in the QP Lifting Equipment Technical Regulations (Doc. No. QP-REG-Q-001)

b) No 'Lifting Appliance' shall be used unless QP Approved Third Party Authority (TPA) has issued a certificate, verifying its design suitability for its intended use in a specified environment.

c) All 'Lifting Appliances' shall be assigned unique identification numbers and marked with certified SWL. In addition all items shall be 'colour coded' in accordance with QP

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colour coding scheme, which is applicable at the time of utilization. The Contractor shall ensure that the equipment bears the current colour coding according to the period specified in the QP colour coding schedule.

d) Comprehensive Register of 'Lifting Equipment' detailing the following minimum information shall be developed for monitoring periodic inspection requirements:

Equip. ID No.	Brief Description of Equipment	SWL	Date of Proof Load Test	Due Date of next Proof Load Test	Date of Inspection	Due Date of next Inspection

e) No 'Lifting Appliance' shall undergo alterations to components or parts that affect its structural integrity or load bearing capacity without the written approval of an Approved Certifying Authority or from the original equipment manufacturer.

f) When 'Lifting Appliance' has undergone repairs that affect the load bearing parts or replacement of parts or components that affect the structural integrity, the 'Lifting Appliance' shall be re-inspected and certified by QP Approved Certifying Authority.

g) Safety devices that affect the integrity of a 'Lifting Appliance' shall not be altered without the written approval of a QP approved Third Party Authority (TPA) or the original equipment manufacturers.

h) Where a 'Lifting Appliance' has suffered major damage or incident, the appliance shall not be repaired without a written repair procedure from the original equipment manufacturer, and shall be retested after the repairs by a QP approved QP Third Party Authority (TPA) to verify the equipment structural integrity.

i) Any 'Lifting Appliance', that has been newly installed or relocated, shall undergo approval by Certifying Authority and commissioning tests shall be performed before being used.

j) A complete manufacturer's Maintenance and Operating Manual for 'Lifting Appliance' shall be available for reference to the Operator and maintenance personnel at site / location. The 'Lifting Appliance' shall be operated and maintained in accordance with the procedures set out in their relevant handbook and manuals.

k) Maintenance activities carried out on the appliance should be recorded in the Log Book for the equipment.

m) No item of Lifting Equipment shall be utilized in a location or place where it is impractical to maintain safe clearance.

n) All cranes permanently installed in a location that has slewing limitations or crane boom restrictions (i.e. jack-up rigs or barges) due to structural design (i.e. legs) shall be fitted with an approved and maintained limiting device, in accordance with the relevant 'Standards'.

o) A current copy of the applicable 'Standard', as detailed in the QP Lifting Equipment Technical Regulations (Doc. No. QP-REG-Q-001), shall at all times be available for reference to personnel utilizing Lifting Equipment.

p) All hazardous moving parts on any item of Lifting Equipment shall be designed and constructed in such a manner that adequate safety protection to personnel is provided.

q) Where the stability of any Lifting Equipment is achieved by weights or ballast, they shall be adequate and suitable for the required task, and shall be placed in accordance with a 'Certification Authorities' approved ballast diagram. They shall be firmly secured to prevent accidental displacement.

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5.4.5 LIFTING EQUIPMENT SPECIFIC RISKS

Lifting appliance shall not be used under weather, wind speed and sea conditions likely to endanger its stability or to endanger any person, vessel or installation.

Instructions issued by the manufacturer, specifying weather, wind speed and sea conditions in which the lifting appliance should either not be used or used subject to limitations, shall be followed.

Before using a lifting appliance in circumstances where the weather, wind speed and sea conditions would be likely to affect the safety of the operation, effective steps shall be taken to obtain information on weather and sea -conditions for the period during which the lifting operation will be carried out.

The use of lifting machinery and equipment shall be restricted to those persons given the task of using it. Repairs, modifications, maintenance or servicing of lifting equipment shall be restricted to authorized persons who have been specifically designated to perform operations of that description.

5.5 HAND TOOLS

The following rules shall apply to the use of hand tools by Contractor personnel working for QP (Refer also to the QP Guidelines for Hand /Power tools Safety; Doc. No.: IP-SF-017):

- a) The job shall be well planned in advance and the appropriate personal protective equipment worn before commencement.
- b) Each hand tool shall be inspected to ensure that it is in good condition before use and shall be kept in good condition throughout its usage on QP operations. Unsafe tools shall not be used for work on QP contracts. Unsafe tools include wrenches with cracked or worn jaws; screwdrivers with broken tips, or split or broken handles; hammers with chipped, mushroomed or loose heads and broken or split handles; mushroomed heads on chisels; dull saws; and extension cords or electrical tools with improper or broken plugs, improper or removed grounding systems, or split insulation.
- c) Workers shall be trained on the selection of the right tools for each job and the correct usage of the tools.
- d) Only trained and authorized personnel shall be allowed to use power tools.
- e) Tools shall be stored in a proper storage area, and carried to and from the work site in a tool box, cabinet, or other appropriate tool holder or pouch.
- f) Tools shall not be carried up or down ladders by hand. Appropriate pouches shall be used. Where pouches are not available, tools shall be lifted and lowered by hand lines.
- g) Tools shall not be thrown from one level to another, neither shall they be thrown from one location to another on the same level.
- h) Tools shall not be kept lying on the floor, on the scaffold, in walkways or cluttering work benches.
- i) Spark proof tools shall be inspected regularly to ensure that there are no steel splinters.
- j) Power tools shall be inspected, tested and used, in accordance with the manufacturer's instructions.

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5.5.1 PORTABLE POWER TOOLS

Only trained and authorized personnel shall be allowed to use power tools.

A. ELECTRICAL POWER TOOLS

The following safety precautions must be observed when using electrical power tools:

- Work Permit shall be obtained before any work is performed in a hazardous area using electrical equipment.
- Portable power tools shall be inspected for damage prior to use.
- In order to minimize the effects of electric shock, portable appliances must be connected to an electrical supply only through the correct connectors; temporary or locally made connectors must not be used.
- A record shall be kept of all power tools; the tools shall be checked for any defects in accordance with the manufacturer's instructions.
- The stores representative shall ensure that any tools or accessories that appear damaged are not issued, labeled as "For Repair" and sent for repair.
- Power tools shall be fitted with a fail-safe device which renders the tool inoperative when the operator releases his hold.
- Where guards are required, they shall be securely fitted and correctly adjusted.
- The operator shall ensure that all moving parts are motionless before setting the hand tool down.
- When working in an elevated or restricted area, e.g. on scaffolds, the operator shall ensure a good safe footing and shall use both hands to operate the tool.

B. PNEUMATIC POWERED HAND TOOLS

The following safety precautions must be observed when using pneumatic tools:

- Power tools shall be inspected, tested and used, in accordance with the manufacturer's instructions.
- Power tools shall be provided with a failsafe device which renders the tool inoperative when the operator releases his hold
- Prior to any pneumatic tools being prepared for use, the manufacturer's instructions must be consulted and fully understood.
- Pneumatic tools must not be used for any purpose other than that for which they were designed. Non-standard attachments and accessories shall not be used.
- The compressed air supply must be regulated to the correct pressure, adequately filtered, dried, and where necessary, lubricated.
- The means of disconnection from the air supply must be easily accessible. Prior to performing any repair, adjustments or cleaning on pneumatic tools the air supply shall be isolated, lines and tools de-pressurized and tools disconnected.
- Safety goggles and breathing masks shall be worn where grit or dust may be produced or disturbed. Ear protectors shall be worn where the work generates high noise levels in excess of 85 dB.
- Under no circumstances shall compressed air be directed at any part of a person's body.

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- Precautions must be taken to prevent clothing, hair, rags, etc. from becoming entangled with any moving parts of pneumatic tools.
- Maintenance of pneumatically operated tools must be carried out at regular intervals by competent persons. Tools must not be modified or the labels and descriptions defaced or removed.
- Where guards are required they shall be securely fitted and correctly adjusted.
- Where sparking or heat is generated by the use of pneumatic tools, an approved coolant shall be used
- Only patented pneumatic hose, couplings and fittings of the correct rating shall be used when using pneumatic tools. Where applicable, whip lash protectors shall be used at hose quick release union type connections and split pins on the couplings
- Compressed air driven tools shall be fitted with governors to ensure correct speed control.

C. CARTRIDGE OPERATED TOOLS

All cartridge operated power tools shall conform to BS 4078 or equivalent.

- Cartridge operated power tools shall only be handled, used by or under the immediate supervision of, a competent person with knowledge of the dangers connected with their use
- Cartridge operated tools shall not be used in the immediate vicinity of other workers.
- Cartridge operated tools shall not be used unless fitted with a suitable guard or shield.
- Cartridges shall not be carried loose, neither shall they be left lying about.
- Only cartridges specified by the tool maker shall be used
- A loaded tool shall never be left unattended.
- Cartridge tools shall not be used in areas where flammable gases, vapours, or explosive dust are present.

5.6 SCAFFOLDING AND MEANS OF ACCESS AND ESCAPE

All scaffolds and stagings shall comply with recognized standards including the requirements of the Scaffolding procedures of the specific QP location at which the work is to be undertaken (e.g. Inter-Departmental Procedures IP-OPS-026, 030, and 034). Prior to using any scaffolding, it shall be approved by QP.

All scaffolding work in QP contracts shall be covered under the Permit to Work (PTW) System and a separate work permit shall be issued for erecting or dismantling of each scaffold.

Scaffolding shall only be erected, dismantled or modified by qualified scaffolding Contractor in accordance with QP requirements.

A work permit for the erecting of scaffold shall not be signed off as complete until the scaffold has been inspected and approved for use by a Scaffolding Supervisor.

A work permit for the dismantling of scaffold shall not be signed off as complete until the scaffold materials have been removed from the site to a dedicated storage area. After a scaffold has been erected and approved for use, any planned work on the

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scaffold structure that requires a work permit shall be conducted on a separate work permit.

In addition, the scaffolding shall meet the following minimum requirements:

- a) A scaffolding tag "SCAF-TAG" indicating QP acceptance shall be attached to the scaffolding in accordance with the relevant QP procedures.
- b) Timber uprights and ledger shall not be used. Metal parts used for scaffolds shall be in good condition and free from corrosion.
- c) All poles, planks and general materials, used for scaffoldings, shall be kept in good condition and be inspected by a competent person appointed by the Contractor on each occasion before being issued from the store for use. No materials, other than those specifically designed for the purpose, shall be used for scaffolding.
- d) A scaffold shall be erected only by men knowledgeable in the job, working under the immediate supervision of an experienced foreman, who knows the purpose of the scaffold and how it should be constructed to carry the loads which will be placed upon it.
- e) Scaffolds shall be securely supported, or suspended and where necessary braced to ensure stability. Unless constructed as an independent scaffold, it shall be rigidly connected to the building or structure. 6 mm (1/4 inch) wire shall be used for lashing.
- f) In the case of partially erected or dismantled scaffolds still capable of being used, access thereto should be effectively blocked and prominent warning notices in English/Arabic languages shall be posted. The "SCAF-TAG" is to be removed.
- g) All platforms, scaffolds and other workplaces, from which persons may fall more than 2 m (6 ft 6 inches) shall have edge protection which consist of an upper rail not less than one meter (3 ft 3 inches) in height above the walkway and have at least one intermediate rail.
- h) Vertical toe boards shall be fitted to all scaffolding.
- i) When permanent hand rails have to be removed from elevated platforms, rope or wire hand rails shall be fitted in their place.

5.6.1 REQUIREMENTS FOR BOARDS AND PLANKS

- a) Boards of 38 mm (1.5 inch) minimum thickness shall be used. These shall be at least 203 mm (8 inches) wide (see QP location specific Operations scaffolding procedures QP IP-OPS-26, 30 & 34).
- b) The spacing of board supports shall depend on the thickness of the boards used and the load to be carried. There shall be at least three supports. Support for 38 mm (1.5 inch) boards shall not be more than 1.5 m (4.9 feet) apart. Support for 51 mm (2 inch) boards shall not be more than 2.5 m (8 feet 6 inches) apart. All boards shall be supported at the ends.
- c) Boards shall be end-butteted and close boarded throughout. Overhanging of boards of any thickness shall not exceed four (4) times their thickness and not less than 50 mm.

5.6.2 WORKING PLATFORM

- a) All working platforms should be close boarded and all boards should be lashed or secured. Handrails and toe boards should be fitted to all towers over 2 meters.
- b) Widths of platforms shall vary according to the scaffold's purpose.
- c) As a general rule, if the platforms are to be used only as a footing, they shall be at

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least 610 mm (24 inches) wide. If small quantities of materials have to be put on them, the platform width shall be increased to 813 mm (32 inches) wide.

5.6.3 MOBILE TOWER

- a) The height of a mobile tower shall not exceed three times the length of the shortest side.
- b) There should be only one working platform on a mobile tower.
- c) Mobile scaffolds shall only be used on ground which is firm and level.
- d) Moving the tower shall only be done by pushing or pulling the base.
- e) The working platform must be clear of men and materials when the tower is being moved. Personnel shall never ride on a scaffold that is being moved.
- f) Wheels should be turned outwards and brake must be on and locked before use.
- g) It is advised to tie the tower to the structure whenever possible.

5.6.4 INDEPENDENT TOWERS

The tubular scaffold used most often is the independent tower. The independent tower apart from necessary ties, stands completely free from buildings or structures and is used mainly for accessing pipe bridges or high maintenance jobs where only a small working area is required. It shall meet the following requirements:

- a) The foundation must be capable of carrying the weight of the tower, equipment and men.
- b) Base plates must be placed under all standards and if there is any danger of lateral movement they must be securely fixed, substitutes must not be used. Special precautions must be taken to provide stability on soft soil, or surfaces likely to be damaged.
- c) Standards must be vertical and joints must be staggered. The distance between standards must be no more than 2.4 m for power cleaning, painting and light engineering works for 2 men platform (BS 5973 - the Code of Practice for Access and Working Scaffolds and Special Scaffold Structures in Steel).
- d) Ledgers must be horizontal and fixed to the standards with load bearing clips. Generally ledgers will be vertically spaced at about 2 m centres for easy erection, also providing ample headroom if an intermediate working platform is required.
- e) Diagonal bracings must be fitted on all lifts on all sides and a cross bracing should be fitted at the base and at other levels where necessary to keep the tower rigid, but at least every alternative lift.
- f) If the height of the tower is more than 3 1/2 times the length of the shortest side it must be adequately tied.

Note* It is good practice to tie scaffolds to the adjacent structure whenever possible irrespective of height.

5.6.5 FALLING OBJECTS

- a) Parts of staging, tools and other articles and materials shall be properly lowered and shall not be thrown down from a height. They shall be raised/ lowered by rope or other suitable means such as gin blocks. Gin blocks shall be used to lift materials, when the load to be lifted does not exceed 50kg. Gin blocks shall never be used for personnel transfer. A gin block shall be mounted on a cantilever tube projecting outwards from the scaffold at a maximum distance which shall not exceed 750mm. This supporting tube shall be attached to two standards.
- b) The Contractor's Site Representative shall ensure that no loose articles and materials are left lying about in any place from which they may fall on persons

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working, or passing beneath. Dropped objects program shall be implemented on Drilling Rigs / Masts.

c) Protective netting shall be installed, where necessary (e.g. during construction of high-rise buildings next to existing ones), to prevent falling objects from causing injuries and damage.

5.6.6 THE USE OF LIGHT METAL ALLOYS IN HAZARDOUS AREAS

Ignition of gas-air mixtures can occur as a result of impact or rubbing of metals. Impact between light metal alloys and metals having an oxygen containing surface (e.g. rust, or metal painted with red lead) can produce sparks of high energy due to the thermite reaction, which may ignite a flammable mixture.

As a safety precaution, light alloy/aluminium ladders and scaffolding shall not be used in Zone 1 hazardous areas.

5.7 GUARDS AND GUARDING SYSTEMS

The following regulations shall apply:

- a) The Contractor shall be required to keep in place all guarding systems provided by the manufacturer of equipment/machinery to protect workers from inherent hazard associated with the operation of rotating machinery. Covers for pulleys and v-belts, grinding disc guard etc., are examples of guarding systems.
- b) Electrical guarding systems shall be in order and operable. Bonding and earthing are essential to electrical safety. Electrical equipment is earthed first for protection of personnel and second for the protection of equipment. Guarding of stationary and mobile equipment shall be within the limits recommended by the relevant QP and international standards and codes. Moreover, earthing shall be checked and measured frequently and on a routine basis.
- c) Guard / Hand rails and or barricading shall be provided for:
 - Any walkway or wall opening from which there is a drop of more than four (4) feet.
 - Any open-sided working surface from which there is a drop of more than six (6) feet. Vee-doors on rig floors is one such example and should have a guard rail, safety chain or safety cable across the opening when pipe is not being picked-up or laid down.
Walkways with missing, broken or loose guardrails shall be taken out of service until repaired.

5.8 HAZARDOUS GASES AND LIQUID NITROGEN

QP operations involve various types of hazardous gases such as hydrocarbon gases, oxides of Nitrogen (NO_x) and Sulphur (SO_x), Hydrogen Sulphide (H₂S) and the elemental gases (e.g. Nitrogen, and Hydrogen). Contractor shall take all necessary steps to ensure that its employees have been trained, are aware of the risks posed by these gases, and that they are adequately protected from the harmful effects while working on QP contracts.

5.8.1 HYDOGEN SULPHIDE

Hydrogen sulfide (H₂S) is a highly toxic, flammable, colorless, and corrosive gas. H₂S can cause immediate death, even when inhaled in moderate concentrations. It is a hazard that is present in some QP locations. Contractor employees working in an H₂S environment shall undergo the H₂S and Breathing Apparatus training. Warning signs shall also be posted in areas where H₂S is present.

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As a minimum, Contractor employees shall be required to be aware of the following Hydrogen sulfide (H₂S) characteristics:

- H₂S has an offensive odor, similar to rotten eggs, which rapidly deadens the sense of smell making odor an unreliable means of detecting this poisonous gas
- H₂S is heavier than air and will tend to accumulate in low-lying areas
- H₂S burns with a blue flame and when burnt, produces sulfur dioxide (SO₂), which is another toxic gas
- Even at low concentrations, H₂S can affect the eyes as well as the respiratory tract
- H₂S is extremely corrosive to metal requiring careful material selection
- The Permissible Exposure Limit (PEL) of H₂S is less than 10 PPM.

5.8.2 CARBON DIOXIDE AND NITROGEN

Carbon dioxide (CO₂) and nitrogen (N₂) are non-toxic, non-flammable, colourless, tasteless and odourless gases. CO₂, in high concentrations, has an acidic taste and a slightly pungent odour. Both CO₂ and N₂ are heavier than air and tend to accumulate in low-lying areas. Extended overexposure to CO₂ and N₂ blocks the intake of oxygen, stimulates breathing and increases the heart rate. This can result in discomfort, nausea, and ultimately unconsciousness and death.

Contractor employees working in areas where high CO₂ and N₂ concentrations may be encountered shall be trained in their effects and the protective measures to be followed. The Permissible Exposure Limit (PEL) for CO₂ is less than 5,000 PPM. Oxygen (O₂) content shall be kept above 19.5% to avoid asphyxiation due to excessive concentrations of CO₂ and/or N₂.

5.8.3 LIQUID NITROGEN

A) OFFSHORE PRODUCTION STATIONS

The requirement for liquid Nitrogen on offshore installations shall be fulfilled by means of standard Nitrogen cylinders or pumped on board by the Nitrogen ring main.

B) OFFSHORE DRILLING RIGS

The requirements for liquid Nitrogen on offshore drilling rigs shall be fulfilled by means of standard nitrogen cylinders or pumped on board by approved special piping arrangements.

C) SAFETY PRECAUTIONS REGARDING LIQUID NITROGEN

- Ensure that no potentially combustible materials are left around liquid nitrogen equipment.
- Tidiness is mandatory for a safe operation.
- Brief all personnel of the hazards associated with oxygen starvation around the area of operation.
- Avoid skin contact with liquid leaking from equipment and for a cold equipment surface.
- When a Nitrogen unit is shutdown, all lines shall be vented immediately. The unit shall not be left unattended until all Nitrogen pressure gauges indicate zero.
- Keep drip pans and areas under liquid Nitrogen piping free of oil and other hydrocarbons
- Keep relief valves on Nitrogen lines in place.
- Leave vent paths from all lines open until flow stops from vents.
- Do not vent Nitrogen gas in an enclosed area.

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- Vent high pressure lines as quickly as possible after pumping has been shutdown.
- Tie down all discharge manifolds.
- Place danger signs for restricted access.
- Beware of any thick, ground level fog adjacent to a Nitrogen unit.
- Ensure adequate ventilation when working with Nitrogen in an enclosed area.
- During transport, containers should be adequately protected against lateral and longitudinal impact and against overturning.
- A boat transporting liquid Nitrogen shall be dedicated for that purpose only for the duration of the Nitrogen related operation.
- Only containers complying with QP Engineering Standard ES-M-51 shall be used.
- Suppliers representatives shall be on board the vessel at all times, while liquid Nitrogen is in the container.
- The supply connection at the offshore facility shall be of a flanged type. The discharge connection on the Nitrogen converter shall be of a quick release union type.
- The discharge hose/chiksan shall have a non-return valve at the flange end and a vent valve close to the quick release connection.
- Always leave the isolation valve of the pressure regulator (Road Valve) open when unattended, even when empty.
- As a minimum, the following protective clothing must be used by all personnel involved in the handling of liquid Nitrogen containers.
 - Coveralls that provide adequate thermal insulation.
 - Steel toed boots
 - Hard hat
 - Face shield and safety goggles
 - Gauntlet type gloves

5.9 GAS CYLINDERS

The following regulations apply to all industrial transportable gas cylinders including containers for dissolved acetylene (see also the Interdepartmental Procedure-Guidelines for Gas Cylinder Safety IP-SF-015 and the requirements specified in the Gas Cylinder Technical Regulation [Doc No.: QGPC-REG-Q-002]):

5.9.1 CYLINDER IDENTIFICATION AND USAGE

- a) Gas cylinders shall be colour coded in accordance with BS 349 i.e. OXYGEN - Black, ACETYLENE - Maroon; NITROGEN - Gray Body with Black Top; PROPANE – Bright Red; BUTANE - Blue; HYDROGEN - Red. Full and empty cylinders must be clearly distinguished, and stored apart.
- b) The use of domestic cooking gas cylinders (i.e. 12-14 kg domestic LPG cylinders) for industrial applications is prohibited since they are not equipped with standard safety features and devices for heavy duty/industrial uses in the camps. The common size of industrial cylinders used is 35 kg.

5.9.2 STORAGE OF CYLINDERS

Cylinders shall be stored with due regard to fire hazard. No flammable materials shall be stored on the site with them, or in the immediate vicinity. Cylinders must be kept at a safe distance from any heat source.

Cylinders shall be stored in such a manner that they can be readily removed in the event of fire. They shall be adequately secured to prevent falling over.

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Oxygen cylinders and their fittings, including hoses, shall not be stored, in such a place or used in such a manner that they shall come into contact with oil, grease, live electrical apparatus or sparks.

Oxygen and flammable gas (Acetylene, Hydrogen, Propane, etc.) cylinders shall be stored in separate areas a minimum of 20 feet apart or separated by a steel fire wall, minimum ¼ inch thickness.

5.9.3 STACKING OF CYLINDERS

Stacking of cylinders is prohibited. All pressurized cylinders shall be stored vertically and secured and kept off wet ground.

5.9.4 HANDLING AND MOVEMENT OF CYLINDERS

Cylinders of Oxygen, Propane and dissolved Acetylene shall not be subjected to rough usage, or excessive shock, or used as rollers, or supports.

Cylinders shall not be dropped from a height. A proper carriage, or platform and not a sling, shall be used for moving cylinders, whether empty or full.

When cylinders are being transported, they shall be loaded and firmly wedged to prevent violent contact when the vehicle moves. Oxygen cylinders shall not be transported on trucks together with Hydrogen, Acetylene or LPG cylinders. On no account shall cylinder trolleys be towed by motor transport. The transportation of any gas filled cylinder shall always be in a proper rack, regularly maintained and properly inspected at least biannually. Cylinders, empty or full, shall only be lifted by their certified cylinder racks.

5.9.5 CYLINDER FITTINGS

- No fittings, or equipment containing 90% copper (except burner tip) shall be used with Acetylene.
- The use of lead washers or any kind of packing whatsoever in the valve joints is strictly forbidden.
- The Contractor shall ensure that cylinders with faulty valve joints, immovable valve spindles, or valve leakage are immediately removed from the site and returned to the suppliers for repair.
- Only standard valve keys shall be used.
- Only standard automatic pressure regulators and pressure gauges shall be fitted to both Oxygen and Acetylene cylinders. Regulators and gauges shall be checked at least once a year to ensure they are functioning properly.
- Damaged gauges or regulators shall be removed from service for repair immediately a defect is discovered.
- RED hose shall only be used for Acetylene, Hydrogen, LPG and other combustible gases and BLUE hose shall be used for Oxygen and Nitrogen.
- Hoses shall be of good quality to resist kinking and abrasion and they should comply with BS 5120:1987 Specification for rubber hoses for gas welding and allied processes or equivalent
- Hoses shall be pressure tested annually and examined at least monthly to ensure that they are free from cuts, cracks, burns and excessive wear. Written documentation shall be maintained and produced for confirmation upon request.
- Only secured hose connectors shall be used. It is strictly prohibited to bind hose connections with wire or jubilee clips.
- Use of oil or grease for lubrication of any part in oxygen cylinders is strictly prohibited to avoid combustible chemical reaction.

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5.9.6 GAS WELDING/CUTTING EQUIPMENT

- All Oxy-acetylene sets which are portable shall be wheeled on a trolley.
- When not in use, blow-pipes and hoses shall not be left in vessels or enclosed spaces.
- Where this cannot be done, the Oxygen and Acetylene/LPG connections shall be disconnected at the cylinders situated outside the vessel. Merely closing the valve is not a disconnection.
- Empty cylinders and cylinders no longer required shall be removed from the Site as soon as practicable. Caps shall be in place.
- Empty cylinders should be clearly marked "MT" and stored separately.
- Unless the Corporation has granted prior written consent not more than one day's supply of compressed gas shall be kept at site.
- Flashback arrestors and check valves shall be fitted at the outlet of each regulator for both oxygen and acetylene, similarly a flashback arrestor and check valve shall be fitted between the hose connection and to the inlet of the torch for oxygen and acetylene..
- When not in use, all cylinders shall have protecting caps screwed on.
- Cylinder valves shall be closed immediately when gas is not required, or when the cylinder is empty and the hose de-pressurised.

5.9.7 TEST CERTIFICATES

The Contractor shall be required to provide a valid Test Certificate for all gas cylinders and Acetylene containers which will be used in connection with the Work. The Test Certificate shall contain the following information as a minimum requirement:

- Serial number of cylinder
- Type of gas
- Tare weight
- Test pressure (not applicable to dissolved acetylene containers)
- Expansion
- Permanent Expansion
- Percentage Permanent Expansion
- Date of last test
- Results of visual and hydraulic test (hydraulic test not applicable to dissolved acetylene container).
- The Contractor shall, be required to withdraw from service all cylinders that have reached the maximum interval between periodic inspection and testing.

Where any clarification is required the QP Site representative or contract Holder should be contacted.

5.10 RADIOACTIVE SUBSTANCES

All operations involving the use of radio active substances shall be carried out in strict compliance with Qatar's Decree Law no 31 of The Year 2002 concerning Radiation Protection and the Executive Rules of The Decree-Law no. (31) of the year 2002 concerning Radiation Protection, and the Ministry of Environment (formerly SCENR) Regulations 2, 3, and 4 of the year 2007 concerning Radiation Protection. The Contractor shall in addition, comply with the requirements stated below.

- The operations must be supervised by the Contractor to ensure that protective measures are properly maintained and to check the extent of the protection afforded in practice.

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- The Contractor is required to provide QP with a list of radio active sources held by the Contractor and all employees who use or store these radio-active sources on QP's property. The Contractor shall notify the relevant QP representative of all sources to be used in QP areas.
- The Contractor shall be responsible for the supply, operation and regular testing of all necessary monitoring equipment and to ensure that all protection barriers are placed and altered as a result of survey radiation level readings in accordance with internationally acceptable levels.
- Any production, process equipment or waste that has been in contact with reservoir fluids shall be assumed to be contaminated until measurements prove otherwise.
- The absence of gamma radiation external to equipment does not mean that items are not contaminated internally. Checks shall be carried out prior to any work being performed on the internals of equipment
- Local radiation protection issues shall be referred to the local QP HSE Radiation Protection Officer (RPO) who has been licensed by Qatar's Ministry of Environment

5.10.1 STORAGE

All radioactive substances not in use shall be kept securely in a dedicated store. The storage place should be clearly marked with the warning sign, the wording: "DANGER - RADIOACTIVE MATERIALS" the details of the substances being stored (isotope and maximum activity) and the emergency contact details in clear and indelible print. Its access hatch or door should be provided with a lock, the keys of which should be kept by the Radiation Protection Officer or his delegate.

Only authorized personnel shall introduce sources into, or remove them from, the store.

It is responsibility of the Contractor to ensure the safety and security of sources of radiation for which they are responsible.

The Contractor shall be responsible to protect individuals from harm by establishing and maintaining effective defences against the radiation hazards arising from these sources

A storage facility shall provide protection from any prevailing environmental conditions, be resistant to fire and be restricted solely to the storage of radiography equipment. It shall provide adequate shielding to reduce the dose rate at the perimeter of the area to less than 2.5 μ Sv/hr or as authorized by the Regulatory Authority.

For security, the door shall be kept locked and any exposure device controls held by authorized personnel only.

Clear warning notices (in Arabic/ English) shall be displayed at the point of access to the facility, and inventory checks carried out to confirm the location of sources and equipment.

5.10.2 TRANSPORT OF RADIOACTIVE SUBSTANCES

- Contractor is responsible for the correct implementation of packaging and transporting radioactive substances at all times while working for QP.
- Any consignment presented for transport shall comply with the packaging and monitoring requirements

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- Any conveyance used to transport radioactive substances shall be at all times under the full control and supervision of either a single Sender or Recipient (controlled transfer) with respect to all initial, intermediate and final (un)loading.
 - The internationally accepted placard for radiation shall be placed on both sides and at the rear of the conveyance.
 - The conveyance shall be manned by the driver and authorised radiation workers. No passengers other than the driver and these authorized radiation workers shall be allowed.
- The conveyance shall be provided with the following equipment in addition to the general requirements for transportation:
- Written contingency instructions (in Arabic and English)
 - Transport documentation.

Monitoring prior to transport: The RPO shall measure and record the following information regarding the radioactive substances:

- the highest dose-rate on contact with the sides of the conveyance
- the highest dose-rate at a distance of 1 metre from the sides
- The dose-rate in the driver's cab.

The dose-rate should not normally exceed 100 $\mu\text{Sv/h}$ at contact to the container or exceed 1 $\mu\text{Sv/h}$ at 1 metre or in the driver's cab. Inform the RPO if these levels are exceeded.

Transport of radiation sources:

- Handling and transport of sources shall be carried out by classified radiation workers. Sources shall be transported in an approved container within a locked transport box. The box shall be located as far as possible from the driver and firmly secured to prevent movement in transit
- The radiation levels within the cab shall not exceed 7.5 $\mu\text{Sv/hr}$. Radiation levels at any point 1 metre from the outside of the vehicle shall not exceed 2.5 $\mu\text{Sv/hr}$. Additionally the ALARP principle of keeping doses as low as reasonably practicable shall be followed at all times.
- The transport vehicle shall not be left unattended at any time during source movement
- A register logging all movements of sources with dates and destinations shall be maintained by the Contractor

On the Premises Transport: During transport, radioactive substances shall be kept in adequately shielded and closed containers. Sealed sources for radiography with the exposure container shall be kept inside a lead-lined box which has the radiation warning sign on the outside. The transport container should be properly strapped to prevent movement or loss.

5.10.3 GENERAL HANDLING AND PERSONAL PROTECTION GUIDELINES

The following guidelines shall be adhered to for the protection of personnel:

- Keep exposure As Low As is Reasonably Practicable (ALARP) where exposure to ionizing radiation is not avoidable
- Prevent any exposure to ionizing radiation levels that results in an effective dose of more than 1 mSv/y above background to non-classified personnel and to the public

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Exception is made for Contractors and QP personnel who are classified as radiological worker and are submitted to medical examination as defined by a Medical officer. For them the dose should not exceed 20 mSv/y.
Also, individuals below the age of 18 years and pregnant women shall not be involved in work with ionizing radiation sources.

A) Personal Protection

- If the level of radioactive contamination warrants additional precautions, the following additional measures shall be observed:
- The number of personnel involved in operations where radioactive scale may be encountered shall be kept to a minimum whilst maintaining manning levels appropriate to efficient operation.
- Any personnel involved in an operation where contact with radioactive scale may occur shall wear the following protective clothing:
 - o Disposable coveralls ,gloves, rubber safety boots, safety helmet
 - o Respirators: FFP3 half face mask, full-face mask, air supplied Breathing Apparatus.
- No smoking, eating, drinking or chewing of gum or tobacco is permitted.
- No persons with open wounds are allowed to be involved in an operation
- with radioactive scale contaminated equipment.

- Any person involved in the operation shall be checked to decontaminate himself prior to returning to the accommodation e.g. by showering/hosing with water with particular attention being paid to the boots and gloves. Sites of potential contamination shall be monitored to confirm the effect of this decontamination procedure.

B) Dose Limitation

- Time: Limit the time personnel are exposed to the source
- Distance: Maximize distance from the source.
- Shielding: Use whenever source is not in use and during transport
- A barrier shall be erected around each area where the source is exposed so that the level of radiation at the barrier does not exceed 7.5 $\mu\text{Sv/h}$ in air
- For worker protection when exposed to external radiation, where the radiation contour exceeds 2.5 $\mu\text{Sv/h}$ then the area shall be designated as a radiological Supervised Area
 - The dose rate at the border of storage facilities inside the QP premises shall not exceed 2.5 $\mu\text{Sv/h}$.
 - Fences around Contractor's assets to which the public has access shall be set such that the maximum dose rate at the outside of the fence shall not exceed 0.5 $\mu\text{Sv/h}$ above background.
 - When Contractor performs work or services in public areas the barrier should be set at the potential 0.5 $\mu\text{Sv/hr}$ contour. Warning notices shall be placed at intervals around the perimeter of the supervised area and sentries posted at entry points wherever possible.
- Contractor shall appoint a competent representative who has responsibility and authority in all matters relating to the safe use, storage and transport of radioactive

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sources. The contract holder shall be notified in writing of the name of the competent person.

- Contractor to provide radiation instruments calibrated by an industry qualified organization, scaled in SI units or multiples thereof
- Audible and visual alarms shall be used to notify that the source is about to be exposed and during the exposure period
- Suitable warning notices for display at barriers shall have the wording "RADIATION - DO NOT ENTER"- in Arabic and English. The notices shall also include the radiation symbol
- Contractor shall provide evidence of training in safe handling and use of sources for all personnel involved in the work.
- Contractor shall provide a copy of their Radiation Management System detailing amongst others procedures for the safe handling, storage, transport and contingency plans.
 - The perimeter of the area shall be patrolled during the period of source exposure. In the event of any incident such as loss of shielding or containment or leakage whilst engaged on activities on behalf of QP, the Contractor shall immediately notify the contract holder or his nominated deputy. He in turn will notify the QP- RPO
 - An exposed source must be immediately returned to its safe container on the request of the operating personnel, or in the event of a fire or other emergency occurring. The handling of unshielded radioactive sources shall always be carried out by remote means.
 - Any personnel subject to be exposed to ionising radiation shall wear on the appropriate part of his body a dosimeter or film badge to measure the amount of radiation accumulated. Dosimeter results shall be documented and made available to the Contract Holder if requested.
 - Fixed devices containing sealed radioactive sources, shall be leak tested once in every 12 months and if contamination above 200 Becquerels is detected, the device must be cordoned off and the Ministry of Environment informed immediately..
 - Personnel regularly employed on work involving exposure to ionising radiation (Classified worker), shall be medically examined at the commencement of employment and yearly thereafter as per State of Qatar's health regulations.

5.10.4 OVER EXPOSURE AND DECONTAMINATION

If contamination of personnel is detected, Contractor shall ensure the personnel are adequately treated and the case is handled in accordance with Article 15 of the State of Qatar's Instructions for Radiation work, Area and Dose. The treatment and decontamination activities shall also be in accordance with the Articles 5, 6, and 7 of the Ministry of Environment (formerly SCENR) Regulation No. 3 of 2007 also known as Instructions for the Removal of Radioactive Contamination. The decontamination should start immediately and the QP responsible person (Contract Holder and QP RPO), as well as the relevant Governmental bodies (particularly the Ministry of the Environment) must be informed.

5.10.5 INCIDENTS AND EMERGENCY PROCEDURES

Before any radiography work is started, the Contractor shall be required to establish procedures dealing with accident/incidents and foreseeing an emergency. The procedure shall clearly define responsibilities and actions/measures to be implemented. The emergency procedures shall be in line with the relevant Government Regulations and shall be submitted to QP Safety, Quality and

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Environment Department for review and approval. The Contractor shall also ensure that all personnel involved have been carefully instructed.

5.10.6 NATURALLY OCCURRING RADIOACTIVE MATERIAL (NORM)

- Naturally Occurring Radioactive Materials (NORM) is produced to the surface during oil production processes along with scales. These precipitate on production equipment where changes in temperature, pressure and turbulence occur. The scales can give rise to a radiation hazard.
- The deposition of contaminated scales and sludge in pipes and vessels may produce significant dose rates inside and outside these components,
- Internal exposure to NORM may result from the ingestion or inhalation of radionuclides, this may occur while working on or in open plant handling waste materials and during the cleaning of contaminated equipment.

All Contractor employees at risk of exposure to NORM shall be trained in the hazards associated with NORM and procedures to minimize the external radiation exposure and keep within dose limits and to prevent internal exposure by using all personal protection equipment (PPE).

5.11 ROAD SAFETY

The following regulations shall be considered as mandatory requirements applying to all QP operations. Contractors and sub-contractors will implement and follow these regulations for their own road transport activities, while engaged on QP business. The road transport activities include but are not limited to all personnel, material and freight movement, and mobile plant (drilling, trucks, forklifts, industrial equipment, etc) activities.

5.11.1 SEAT BELTS

The following seatbelt rules shall apply:

- Occupants of all vehicles shall use seatbelts at all times.
- All vehicles (owned, contracted or leased) must be fitted with seatbelts for each occupant.
- Seatbelts for front seat occupants and outboard passengers shall be of the 3-point configuration, preferably incorporating automatic retraction and deceleration activated emergency locking mechanisms, often referred to as “inertia reels”
- Seatbelts shall be equipped with belt pre-tensioners.
- Where there are more than two seats in a row, seatbelts must be fitted for centre seat passengers.
- In vehicles equipped with sleeper berths, if the berth is to be used while the vehicle is in motion, approved restraint shall be provided and used at all times the vehicle is in motion.
- Where it is impossible to implement the above seatbelts requirements for buses or coaches, the minimum requirements are that seatbelts are fitted for the driver (3-point); and front seats with open space in front (such as a seat adjacent to a doorway). These seats should not be occupied unless seatbelts are fitted.

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- Vehicles which are not capable of more than 10 km/h may be exempted.
- Personal vehicles used on QP business shall be consistent with the above specifications.

5.11.2 DRIVER TRAINING AND QUALIFICATION

- Contractor's Drivers must be appropriately licensed, trained and have the functional capability to operate the vehicle.
- All Contractor drivers and operators must have in their possession a valid Qatari driving license and where applicable, an operators license (issued by a QP approved third party) for the class of vehicle being operated.
- All Contractor employees who regularly drive engaged in the performance of the QP Contract shall complete defensive driving instruction in line with the content list below. Additional training for high-risk environments and for specialized vehicles shall also be taken.
 - Review of QP policies, manuals and standards related to driving.
 - Defensive driving techniques
 - Journey management techniques
 - Alertness and fatigue management
 - Effects of medication and substance abuse
 - Vehicle restraint systems and safety equipment
 - Pre-trip checks and proper seating position
 - Local driving hazards, regulations and culture
 - Commentary driving
 - Assessment of driving skill and behaviour
- The need for refresher training and assessment shall be based on drivers' performance and risk exposure, with a refresher course at least every three years following the initial training

5.11.3 COMMUNICATION DEVICES

- Drivers shall neither initiate nor answer a mobile phone call while driving a vehicle; this includes text messaging and the use of hands-free devices.
- This also applies to radios used for two-way communication including communication with base stations.
- The driver shall safely leave the road and bring the vehicle to a complete and safe stop before initiating or answering a call.
- The exception to this is for the use of two-way radios as part of convoy management or for use during emergency situations. Radios used in these circumstances should be kept to a minimum necessary to communicate and control the hazards and risks of the journey being undertaken.

5.11.4 JOURNEY MANAGEMENT

Contractors shall appoint a Journey manager to manage all journeys. The Journey Manager shall be in charge and shall ensure that:

- Appropriate equipment and qualified personnel (driver and mate where applicable) shall be assigned for the journey.

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- The selection of equipment is not only a function of technical specifications for the requested service, but shall also take into account any special considerations for the journey (terrain, weather, high risk crossings, road conditions, etc)
- Formal pre-trip briefing are held and documented. This shall include a discussion between driver and journey manager of routes, stops, hazards, loads, the requirement for the driver to report completion of the journey, and contingency plans for en-route emergencies, etc.
- Appropriate means of communication between driver and journey manager are available and a communication protocol agreed.
- The route is clearly defined and mapped.
- Potential driving hazards, especially dangerous intersections, are identified in advance, taking into consideration the terrain, time of day, weather, known dangers on the route, speed limits, holidays, etc.
- Appropriate vehicles are assigned to the journey taking into account the hazards identified.
- Only qualified drivers are assigned with current certification for the type of vehicles to be used.
- Drivers are physically and mentally fit, giving particular attention to past hours worked, past amounts of sleep, time of the day, position in the natural alertness cycle, food intake, etc.
- Vehicles are inspected using an appropriate checklist before the journey begins.
- Rest stops are scheduled.
- The driver clearly understands his/her responsibility to report completion of the trip to the journey manager.
- All trips during the hours of darkness or during times of reduced visibility shall be systematically reviewed for risk and be subject to formal management approval before they begin. Risk assessment shall consider the risk of fog, rain, sand, dust storms and security risks, and local driving practices.
- In environments where visibility of the vehicle can be problematic for other people (road users and pedestrians), vehicles will drive with their lights illuminated at all times, unless specific risks (security, other identified risk) determine that such practice presents unacceptable risk. This includes low beam (dipped) lights, side marker lights and tail-lights to ensure vehicle are visible from all directions.
- When parking, every effort should be made to park the vehicle in a manner that allows the first move when leaving the parking space to be forward.
- In journey planning, the driving, duty and rest hours specified in Driver fitness and alertness shall be applied.

5.11.5 DRIVING UNDER THE INFLUENCE OF ALCOHOL, DRUGS, NARCOTICS OR MEDICATIONS

Drivers shall not operate a vehicle while under the influence of alcohol, drugs, narcotics or medication that could impair the operator's ability to safely operate the vehicle in line with The State of Qatar Law no. (13) of 1998 – Traffic Law.

5.11.6 DRIVER FITNESS AND ALERTNESS

All personnel employed as drivers and persons regularly driving while performing Contract activities must be medically assessed with a minimum follow-up every five years (unless age or medical condition dictates otherwise) to ensure that they have the functional capability to operate a vehicle safely.

- Drivers must not operate vehicles unless appropriately rested and alert. In particular:
- Drivers shall be screened for disorders such as sleep apnea, epilepsy, diabetes, etc.
 - A process shall be in place to check prior to each journey whether the driver is fit to drive (as part of the journey management plan briefing)
 - Drivers must advise management when they have a disability or condition that could prevent them from driving safely.
 - Drivers shall have the right to refuse to drive when they feel that they are not fully rested or alert.
 - Drivers shall have the right to pull over at a safe location when they feel sleepy; a 15 minute rest should be allowed.
 - Drivers shall be informed on how to identify driver fatigue and alertness problems and means of dealing with them.

The following rules relating to driving and duty hours apply:

No	Requirement	Recommended Practice
1	Maximum driving time between breaks and minimum break time	4 hours followed by a 30 minute break. However it is strongly recommended to have 15 minute breaks every two (2) hours, or more frequent breaks during periods of circadian lows.
2	Maximum duty hours within a 24-hour period	12 hours (i.e. employee cannot drive after 12 duty hours). This shall include driving, loading, unloading, waiting, rest break, and any other work (including air travel).
3	Maximum driving hours within a rolling 24 hour period	Ten (10) hours total excluding commuting time. Eleven (11) hours including any commuting time.
4	Maximum duty hours in a rolling 7 day and 14 day period	14 day period 120 hours, subject to an 80 hour/7 day maximum and an average of 60 hours per week over an extended period
5	Off duty period in a rolling 7 day period.	Minimum of a continuous 24 hour break prior to driving again

Table 5.2: Rules for driving duty hours

5.11.7 VEHICLE SPECIFICATIONS

Vehicles shall be fit for the purpose based on an assessment of usage, and be maintained in safe working order in line with manufacturers' specifications and local legal requirements

The following equipment shall be installed and securely fixed, where appropriate, on light duty vehicles:

- Head rests (all seats).
- Air bags (all seats preferred, but at least driver's seat).
- Anti lock brakes.
- Side impact protection.
- Seatbelts as specified under the seatbelt heading.
- Fire extinguisher.
- First-aid kit & flashlight/torch.
- Approved driver monitoring system.
- Driver and passenger side mirrors.
- Suitable spare wheel and tyre.

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- Disabled vehicle marker (2x warning triangle)
- Only diesel powered vehicles fitted with spark arrestors on the exhaust shall be used in QP restricted areas (e.g. within onshore rig boundaries, production boundaries, and at offshore fields).
- The use of petrol powered vehicles is **PROHIBITED** in QP areas subject to any expressed permissible use.

Additionally, the following equipment shall be installed on heavy-duty vehicles:

- Under run protection.
- Single piece rims as available.
- Reversing alarm system (including other vehicles with limited rear visibility)
- Wheel chocks (on passenger side)
- All vehicles, trailers and movable industrial equipment shall be equipped with retro reflective tape (white and red) at the back and sides as to the specifications required in the QP Road Traffic Rules and Regulation document.
- All vehicles to display side lamps as to the requirements in the QP road Traffic Rules and Regulation document.

Where a risk assessment demonstrates that the risk of rollover due to terrain, vehicle type, or work conditions is higher than normal, a properly engineered rollover protection device must be installed (internally or externally).

Loose items which might cause injury in the event of an accident or incident shall not be carried in the passenger compartment of any vehicle. Any vehicle with non-segregated storage shall be equipped with a cargo net or equivalent to separate the storage area from the passenger area. Any heavy article carried inside the cab of a pick-up truck or cargo vehicle such as jacks, fire extinguishers etc., shall be firmly secured in such a way that they will not become a hazard in an accident.

All loads transported in a pick-up (or utility) truck or other cargo vehicle shall be securely fastened and shall not exceed the manufacturer's specifications and legal limits for the vehicle.

5.11.8 ROAD TRAFFIC MANAGEMENT SYSTEM

Contractor road traffic management system shall include requirements for managing transport safely and the effective implementation of transportation safety recommended practice. These should include:

- *Leadership and commitment* - Management setting clear expectations that recommended practices are met, making resources available to meet them, and setting a good example themselves. This can be demonstrated by management at all levels:
- *Policy and strategic objectives* – Management communicating clear policy statement expressing the commitment to continuously improve road safety through implementation of the above recommended practices, and setting strategic objectives for the aspired improvement.
- *Organization, resources and documentation* – An overall management structure for transport operations shall be documented and communicated. It shall clearly identify the people with responsibility for managing transport safety, and their competencies.

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Adequate competent resources shall be made available in a timely manner to fulfill the transport strategic objective.

- *Evaluation and risk management* – All hazards related to transport shall be identified, documented and risk assessed. Risk reduction measures, including those based on the transportation safety recommended practice shall be put in place.
- *Planning and Procedures* – Transport operations shall be planned in line with the policy, strategic objectives and transport safety recommended practice. The risk introduced by change in planned activities and deviations from policies, procedures and recommended practices shall be assessed periodically, eliminated or mitigated, and approved by management. Procedures should be maintained to identify foreseeable emergencies and response plans developed for such situations.
- *Implementation and monitoring* – Monitoring systems shall be in place to ensure that the management system is effective, that the transportation safety recommended practice are followed, and that a system is in place for managing exceptions. Corrective action shall be initiated in the event of non-compliance. Records shall be kept to demonstrate the extent of compliance.
- *Audit and review* – An Audit programme shall be implemented to verify effective implementation of the management system elements related to transport, and the transportation safety recommended practice. Senior management shall carry out an annual review of audit findings and their close out and assess the need for change to the requirements for managing land transport safety.

All the above mentioned elements shall be included in the HSE management system of the Contractor.

5.11.9 ROAD WORKS & ROAD DIVERSIONS

All traffic control systems used on roads in Qatar Petroleum area's for construction, maintenance, utility or incident management (temporary traffic control) operations shall conform to the applicable specifications of the QP Standard & Guideline for Temporary Traffic Control procedure.

5.11.10 SPECIAL PURPOSE VEHICLES/EQUIPMENT

Special purpose vehicles/equipment consist of but are not limited to (scrapers, graders, diggers, bore machines, pickup, lifting, transport or movement vehicle/equipment). They shall be maintained in safe working order in line with manufacturers' specifications and local legal requirements

Contractor road traffic management system shall include requirements for managing special purpose vehicles/equipment safely and the effective implementation of safety recommended practice. These shall include:

- Written procedures for all safety critical special purpose vehicle/ equipment activities with a monitoring system and an assignment of responsibility for initiating corrective action.
- Operator fitness and alertness – All persons employed as operators of special purpose vehicle/equipment must be medically assessed with a minimum follow-up every five years to ensure they have function capability.
- Specification – All special purpose vehicle/equipment shall be specified for purpose based on assessment of usage and be maintained in safe working order.
- Where applicable special purpose vehicle/equipment shall be fitted with a seatbelt and occupants shall use the seatbelts at all times while operating the special purpose vehicle/equipment.

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Additionally, the following equipment shall be installed on special purpose vehicle/equipment:

- If capable of backwards movement:
 - At least one mirror in the line of sight of operator.
 - Reversing alarm system (Including other special purpose vehicles/equipment with limited rear visibility)
- If the special purpose vehicle/equipment build/body creates blind spots that can not be covered by a mirror or any other visual support system, then a dedicated controller should be used to ensure that the vehicle can move backwards in a safe manner. The controller shall be in direct communication with the operator at all times while special purpose vehicle/equipment is engaged in moving backwards (reversing)
- Wheel chocks.
- All special purpose vehicle/equipment shall be equipped with retro reflective tape (white and red) at the back and sides as to the specifications required in the QP Road Traffic Rules and Regulation document.
- Special purpose vehicle/equipment shall always be placed or stop on a level area and emergency brakes or chocks shall be applied or used.
- Where operations are committed next to or on a road or part of a road and the special purpose vehicle/equipment is or creates a traffic hazard, operations shall conform to the applicable specifications of the QP Standard and Guideline for Temporary Traffic Control procedure.

5.11.11 MANAGING VULNERABLE ROAD USERS

Contractor road traffic management system shall include requirements for managing vulnerable road users and the effective implementation of road traffic safety recommended practice. These should include:

i) PEDESTRAIN ACCESS, CONTROL AND PROTECTION

- When the work area encroaches upon a roadway, special considerations must be given to pedestrians' safety.
- A maximum effort must be made to provide and maintain an accessible, safe, clearly defined and convenient pedestrian way separate from the work area.
- Protective barricades, fencing, and bridges, together with warning and guidance devices and signs, shall be utilized so that the passageway for pedestrians is accessible, safe and well defined.
- Whenever pedestrian walkways are provided across excavations, they shall be provided with suitable handrails.
- Foot bridges shall be safe, strong, free of bounce and sway, free of cracks, holes, and irregularities that could cause tripping.
- Accessible ramps shall be provided at the entrance and exit of all raised footbridges.
- Adequate illumination and reflectorization shall be provided during hours of darkness.
- All walkways shall be maintained at least 2 meters wide with 3 meters wide pullouts every 30 meters except in areas of unusually heavy pedestrian traffic such as construction and business districts, where the minimum width should be 3 meters.
- A pullout is defined as an area where more than two persons can pass one another in the opposite direction.
- Pedestrian access to recommended walking route crossings shall be maintained at all times.

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- Where walkways are closed by construction, an accessible alternate walkway shall be provided, preferably within the planting strip area.
- Where it is necessary to divert pedestrians into the roadway, barricading or channelizing devices shall be provided to separate the pedestrian walkway from the adjacent traffic lane.
- Temporary curb ramps shall be provided to maintain accessibility. At no time shall pedestrians be diverted into a portion of the street used concurrently by moving vehicular traffic.
- At locations where adjacent alternate walkways cannot be provided, appropriate signs shall be posted at the limits of construction and in advance of the closure at the nearest crosswalk or intersection to divert pedestrians across the street.
- A flagman shall be required on arterials to assist pedestrians across the street at non-signalized intersections.
- To prevent people from inadvertently entering a closed area, physical barricades shall be installed to prevent passage.
- All pedestrian walkways shall be accessible at all times.
- Pedestrian access shall be maintained to all properties adjacent to the construction site.
- Where required by special provisions, fixed pedestrian ways (of fence and canopy type) shall be considered and shall include the following:

- The traffic approach end of the barricade shall have a fixed handrail extending from curb to outermost side of the pedestrian walkway. The area from the handrail to approximately the bumper rail shall be covered and marked with standard 45 degree angle red/orange and white reflectorized markings sloping downward on the side on which traffic must pass. The area of this panel shall have a minimum of 4' x 2' reflectorization.
- A high level warning board with minimum height of one meter and width equal to that of the walkway shall be mounted above pedestrian walks on all traffic approaches. The warning board shall be striped with the standard 45 degrees angle orange and white markings sloping downward on the side on which traffic must pass.
- Yellow warning lights shall be mounted on 6 meter centers along the traffic side of the barricade. They shall be installed approximately 3 meters above the roadway surface.
- A continuous 2" x 12" bumper guardrail should be mounted on the street side of the structure at a height of 10" from the pavement to the bottom of the rail.
- The street side of a walkway shall be 2.8 meters high from the bottom of the walkway, plus or minus 6", excepting structural members, for security concerns.

ii) CYCLES

- Cyclists may legally use both street and sidewalk, and need to be considered under both conditions.
- When work encroaches upon a road or sidewalk commonly used by cyclists, as identified as part of the Contractors Road Traffic Management System, Contractors best endeavors must be made to provide and maintain a safe, clearly defined and convenient bicycle way separate from the work area.

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- Closing a lane: the Contractor shall not force a cyclist into an unsafe condition, such as grating, uneven pavement, debris, or an abrupt stop within moving traffic, as part of his traffic control.
- The Contractor shall not install “cyclists dismount “signs at the closure of a lane, but shall use advance signage that the route is closed at a place where the cyclist can modify their route if required.
- Routes, notably sidewalks on bridges, shall be kept free of obstructions. If this is not possible, safe access shall be provided within the existing moving lanes, with proper advanced warning of the roadway or route closure.
- All routes used by cyclists, need to have proper signing and traffic control equipment used.
- A roadway used by cyclists shall be maintained at a minimum of 2 meters, and if this width cannot be provided, flagging and/or an approved detour route shall be required.

iii) DETOURS AND ROAD CLOSURES

Several elements, are involved whenever it is deemed necessary before or during the course of a project, to close an existing roadway and create a detour. These include:

A. Permission and Notification

- Notification shall be given to and permission obtained from QP Area Manager or his delegate
- The Contractor shall submit detour schedules and diagrams showing the steps required to maintain the detour during each phase of construction and showing the type, number and placement of all traffic control equipment.
- The submittal shall include a tentative schedule indicating when specific signs, barricades and pavement markings will be activated and deactivated.

B. Detour Requirements

All detours shall meet the following requirements in addition to any specified by the QP Area Manager or his delegate as being necessary for a particular project:

- The detour shall be as simple and direct as possible.
- No turns shall be used on the detour other than those required to leave or enter the closed street or the parallel detour route.
- Streets or areas less than 36 feet in width shall be used for detouring only one direction of traffic unless parking on one or more sides is restricted.

5.11.12 TRANSPORTATION AND SUPPLY OF HAZARDOUS SUBSTANCES

This section applies to all Contractors transporting hazardous substances involving QP activities/business whether by air, sea, or road. Hazardous substances covered here include compressed gases, flammable liquids, flammable solids, oxidizing substances/ organic peroxides, poisonous/toxic and infectious substances, corrosives, and miscellaneous dangerous substances. Transport of explosives has also been dealt with in sections 5.14.1P & Q and 5.20 while radioactive substances are covered in section 5.10.2.

In general, the transport of hazardous substances shall be in accordance with all applicable QP policies, procedures and guidelines such as the procedure for safe handling of chemicals (Doc No.IP-SF-008), QP Specifications for reporting of

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environmental incidents (Doc No. SPC-ENV-005), QP specification for waste management (Doc. No. SPC-ENV-001), etc. In addition, it shall conform to relevant international standards such as International Maritime Dangerous Goods code (IMDG Code), International Air Transport Association (IATA) Dangerous Goods Regulations and the State of Qatar's environment and natural resources regulations. The following shall apply:

a) Training and instructions

Contractor shall ensure that all its personnel are given the necessary information, instruction and training so that they know the risks to health created by exposure to any hazardous substance and the precautions which shall be taken while undertaking work with that substance. The instructions for packaging, labelling, transport and storage contained on the Materials Safety Data Sheets (MSDS) shall be followed.

b) Consigning party

The hazards associated with the transport of hazardous goods shall be minimized by the application of good industry principles of transport planning/journey management, as referred in this HSE Regulations (5.11.4).

Hazardous goods shall not be consigned for transport unless the consignment party (Department/Contractor/Supplier) has taken all reasonable precautions to ensure that the chemicals can be transported safely with minimum hazard to persons or the environment.

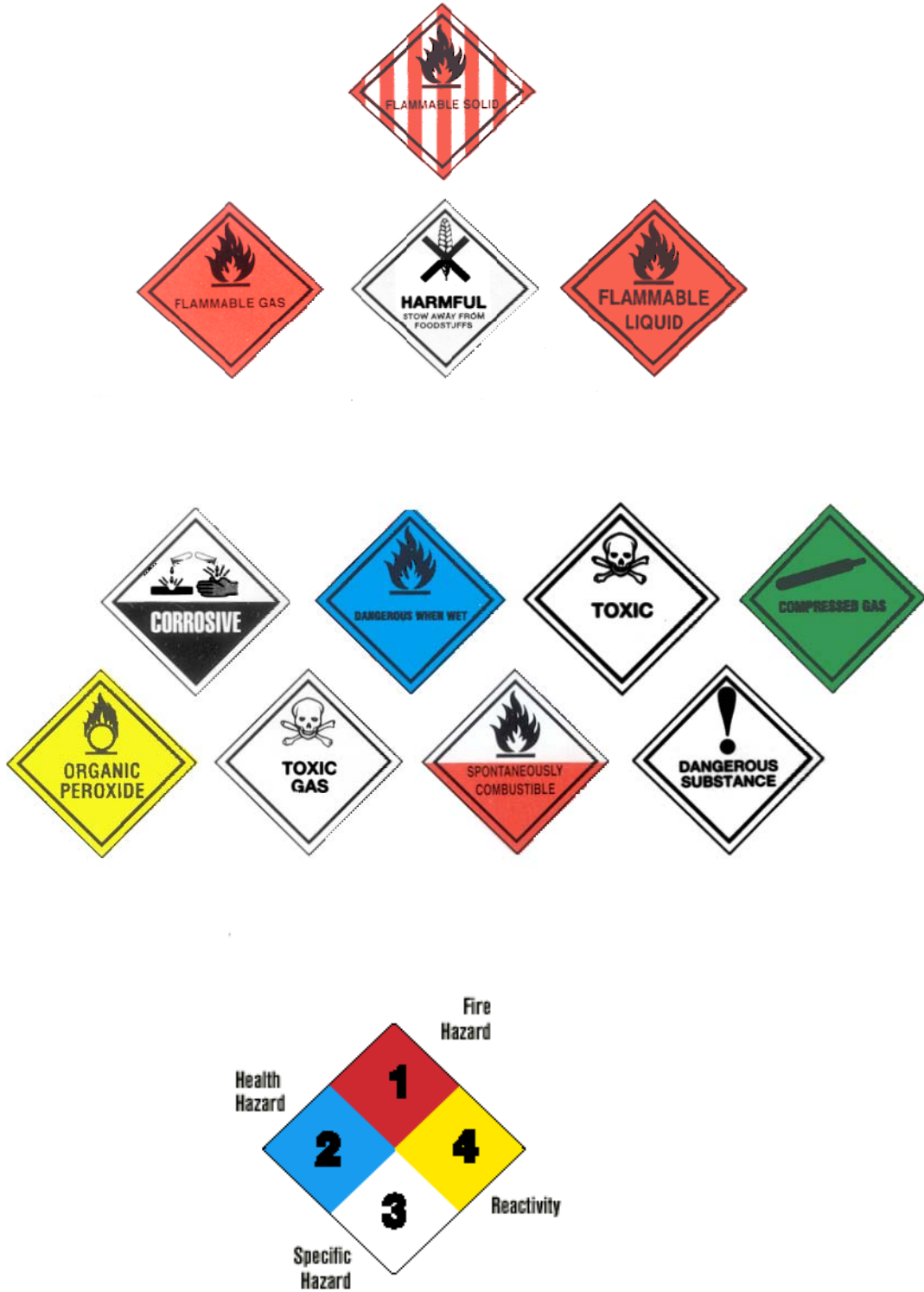
As a minimum, the consigning party shall ensure that:

- hazardous goods are correctly shown on consignment notes including proper shipping name (technical product name, manufacturer's brand name or abbreviation alone is not sufficient, all must be present), UN Code, hazards associated with the chemical.
- Consignment notes are accompanied by the correct Materials Safety data sheet (MSDS)
- All goods of a hazardous nature are transported in packages or tanks which are designed, constructed and maintained to prevent leakage when handled and transported. Packages and tanks shall be secure and resistant to the goods contained therein
- All packages and tanks goods shall be labeled in accordance with the requirements of the IMDG Code. They shall have one or more of the correct diamond shaped labels depicting the symbols shown below in Figure 4 according to the nature of the content.

c) Hazard warning diamonds

Hazard warning diamonds shall be used in conjunction with conveyance labels and shall be fixed to any container of a hazardous substance which is to be transported by road, sea or air. As illustrated in Figure 4 below, in addition to the 13 basic designs, there is an extensive range of hazard warning diamonds for specialist applications. Some of them carry classification numbers to meet the requirements of international transportation agencies.

Figure 4: Hazard warning Diamonds



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d) Drivers/Captains/Pilots

- Drivers/Captains/Pilots shall not accept goods which are known or suspected to be hazardous unless the consignor has provided all required information in (b) above. Drivers shall ensure that the information is maintained clean and in good condition, readily available in the vehicle/craft cab until the goods are delivered.
- Drivers/Captains/pilots shall ensure that vehicles are suitable for the purpose of transporting hazardous goods and display the correct hazard warning plates, if required.
- They have responsibility for initiating containment and recovery measures in the event of a spillage when the goods are in transit under their care.
- Drivers shall ensure that packages containing hazardous goods are:
 - labeled in accordance with consignment paperwork and are suitable for transport (containers of adequate strength, free from obvious damage that could result in leakage, or has resulted in obvious leakage)
 - only accepted for transport on suitable vehicles and are properly secured in accordance with the QP requirements on load security.
- Drivers shall ensure that following completion of the delivery of hazardous goods all consignment note paperwork is either removed from the vehicle or enclosed in an envelop or other sealed container and clearly marked to show that delivery has been completed

e) General precautions

- Labelling shall be clearly shown in indelible marking in English and Arabic, shall be securely fixed, and shall include:
 - the name, address and telephone number of the supplier
 - the name of the substance, both chemical and trade
 - hazard symbol(s)
 - the UN code
- Before loading, the location of the nearest first-aid facilities including emergency shower and/or eye wash station shall be determined
- During loading and discharging drivers shall take precautions to avoid spillage by ensuring that all hoses and valves are properly connected, opened or closed as required and accessories (e.g. pumps) are operated correctly.
- Where manual lifting of packages or containers is required, correct manual lifting techniques shall be used
- In addition to basic PPE requirements, drivers and their helpers shall be issued with PPE appropriate to the load being carried, e.g. goggles, chemical gloves, etc.
- If transport is by sea, the Captain/Master of the vessel shall be notified specifically before hazardous substances are to be loaded on board. In addition the following shall apply:
 - drums of chemicals shall be transported in drum cages specially designed and constructed for that purpose
 - cargoes of palletised chemicals shall remain strapped to the pallets

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- damaged pallets shall not be used and shall be replaced before lifting is attempted
- special pallet lifting devices shall be used to lift pallets from the quayside onto the vessel, and from the vessel to the platform/rig barge
- all other packaged chemicals shall be contained in transport boxes
- only lifting equipment with current, valid certification shall be used
- Hazardous chemicals shall only be transported by air in case of emergencies. In such cases, advice shall be given by the Chief Pilot who will decide if the hazardous chemicals can be transported in accordance with the International Civil Aviation Organisation (ICAO) Dangerous Goods Regulations.
- Road tankers shall be subject to an annual inspection by a recognised third party inspection agency. Road tankers/tank containers shall not be used for the transport of hazardous goods unless they hold valid inspection certificates. All such certificates shall be carried in the vehicle at all times. Following accidental damage, tanks shall be re-tested and re-certified.

f) Precautions against fire or explosion

The following precautions shall be taken against fire or explosion:

- Operators of road tankers and tank containers shall provide such vehicles with adequate fire fighting equipment.
- There shall be no smoking in the vicinity of vehicles loaded with flammable substances. Care shall be taken, especially during loading and unloading to ensure that sources of ignition such as cell phones or radios are kept well away at all times.
- Drivers and operators, inspectors and maintenance personnel shall be conversant with the use of fire fighting equipment and shall take all precautions necessary to prevent fire or explosion.

g) Parking

Vehicles loaded with dangerous goods shall be parked in a safe place, otherwise the vehicle shall be supervised at all times by the driver or another authorised person. This applies to tankers displaying plates with an emergency Action Code (see below) ending in the letter E. However it does not apply for tankers which can be shown to be empty and clean.

h) Vehicle labeling requirements

Drivers of vehicles carrying a total quantity of hazardous goods of 500 kg or more (500 litres or more) shall ensure that the vehicle displays reflectorised plates on the vehicle.

i) Labeling of Road Tankers/Tank Containers/Containers

All road tankers and vehicles transporting tank containers by road used for the transportation of Hazardous Goods shall display Plates on each side as described below:

- Plates shall be reflectorised orange with black borders, figures and letters, except for the space where the individual warning sign is placed which shall be white. Plates are to be indelibly marked on one side only and shall be weather resistant. They shall be securely fitted to vehicles in a vertical attitude, unobscured and no less than one metre above ground level.

- Three Plates are required (one at the rear, and one on each side as close as is reasonably possible to the front of the tank). Hazchem Plates shall comprise a number of individual panels as follows:

Top Left Corner: An Emergency Action Code identifying the equipment to be used for fire fighting and dispersal of spillage (see codes in table 6 below).

Centre Left: The substance identification number taken from the UN/IMDG Code and the proper shipping name of the substance

Top Right: IMDG Chemical Label (as per Figure 4)

Bottom: Telephone number for specialist advice and the carriers name.

- Emergency action codes
Emergency action is coded as follows:
 - by numbers 1 to 4 indicating the equipment suitable for fire fighting and dispersing spillages as follows:
 - 1 = Water jets
 - 2 = Water Fog
 - 3 = Foam
 - 4 = Dry Agent
 - by letters indicating the appropriate precautions to be taken as shown in table 6 Emergency action codes

Letter	Danger of Violent Reaction	Protective Clothing & Breathing Apparatus	Measures to Be Taken
P	Yes	Full protective clothing	Dilute
R	No	Full protective clothing	Dilute
S	Yes	Breathing Apparatus	Dilute
S*	Yes	Breathing Apparatus for Fire	Dilute
T	No	Breathing Apparatus	Dilute
T*	No	Breathing Apparatus for Fire	Dilute
W	Yes	Full protective clothing	Contain
X	No	Full protective clothing	Contain
Y	Yes	Breathing Apparatus	Contain
Y*	Yes	Breathing Apparatus for Fire	Contain
Z	No	Breathing Apparatus	Contain
Z*	No	Breathing Apparatus for Fire	Contain

Table 6: Emergency Action codes

**Note: These symbols are to be shown as white or orange letters on a black background. The suffix "E" should be added to the code if consideration is to be given to evacuating people from the neighbourhood of an accident. (e.g. The orange coloured code 3YE written on a black background on a tanker means that a fire must be fought using foam, that it can react violently, that fire fighters need to wear Breathing Apparatus for Fire, and that the run-off needs to be contained. It also indicates to the incident controller that evacuation of the surrounding area may be necessary).*

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- Single/multi-load labeling: Vehicles containing multi loads shall show a Multi Load Diamond in place of the Hazard Warning Sign, and the word "Multi Load" in place of the substance identification number. Additionally, each tank or compartment shall be labeled with the appropriate substance identification number and Hazard Warning Sign. Such signs are to be displayed on both sides of the tank or compartment to which they apply, as close as is reasonably possibly to the mid point.
- Visibility: All hazard plates and labels are to be clearly visible and shall not be obstructed in any manner which prevents them from being easily read. They are to be kept clean at all times.

5.12 CONCRETE AND MASONRY

Concrete and Masonry workers are exposed to hazards which may lead to accidents and injuries. The injuries may result from exposure to harmful substances, the premature removal of formwork, the failure to brace masonry walls, the failure to support pre-cast panels, the inadvertent operation of equipment, the demolition/repair of concrete structures, and the failure to guard reinforcing steel. Contractor shall take all necessary measures to protect personnel from these hazards and carry out the work in accordance with the relevant QP Engineering and Construction standards. The measures shall include but not be limited to the following:

- Appropriate and adequate personal protective equipment shall be provided and used at all times. This shall include head protection, eye protection, coveralls, Safety boots, and fall protection.
- Signs and barriers must be erected to limit personnel access to hazardous areas such as the post- tensioning area during tensioning operations, and under pre-cast concrete that is being lifted or tilted into position.
- Construction loads shall not be placed on a concrete structure or portion of a concrete structure unless the Contractor has determined, based on information received from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the intended loads.
- All protruding reinforcing steel, onto and into which personnel could fall, must be guarded to eliminate the hazard of impalement.
- Workers shall not be permitted to ride concrete buckets.
- Workers shall not be permitted to work under concrete buckets while the buckets are being elevated or lowered into position.
- To the extent practicable, elevated concrete buckets shall be routed so that no workers or the fewest workers possible are exposed to the hazards associated with falling concrete buckets.
- Personnel shall not be permitted to apply a cement, sand, and water mixture through a pneumatic hose unless they are wearing protective head and face equipment.

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- Workers shall not be permitted to place or tie reinforcing steel more than 6 feet above any adjacent working surfaces unless they are protected by the use of a safety belt or other appropriate fall protection.

5.12.1 FORMWORK AND SHORING

- Formwork shall be designed, fabricated, erected, supported, braced, and maintained so that it will be capable of supporting without failure all vertical and lateral loads that might be applied to the formwork.
- Drawings and plans, including all revisions for the jack layout, formwork (including shoring equipment), working decks and scaffolds, shall be available at the jobsite.
- All shoring equipment (including equipment used in re-shoring operations) must be inspected prior to erection to determine that the equipment meets the requirements specified in the formwork drawings.
- Damaged shoring equipment shall not be used for shoring. Erected shoring equipment shall be inspected immediately prior to, during, and immediately after concrete placement. Shoring equipment that is found to be damaged or weakened after erection shall be immediately reinforced.
- If single-post shores are used one on top of another (tiered), then additional shoring requirements shall be met. The shores shall be:
 - Designed by a qualified designer and the erected shoring shall be inspected by an engineer qualified in structural design,
 - Vertically aligned,
 - Spliced to prevent misalignment, and
 - Adequately braced in two mutually perpendicular directions at the splice level. Each tier also shall be diagonally braced in the same two directions.
 - Adjustment of single-post shores to raise formwork shall not be made after the placement of concrete.
- Re-shoring shall be erected, as the original forms and shores are removed, whenever the concrete is required to support loads in excess of its capacity.

5.12.2 VERTICAL SLIP FORMS

- In the case of Vertical Slip Forms, the steel rods or pipes on which jacks climb or by which the forms are lifted shall be :
 - a) specifically designed for that purpose and
 - b) adequately braced where not encased in concrete.
Forms must be designed to prevent excessive distortion of the structure during the jacking operation. Jacks and vertical supports must be positioned in such a manner that the loads do not exceed the rated capacity of the jacks.
- The jacks or other lifting devices shall be provided with mechanical dogs or other automatic holding devices to support the slip forms whenever failure of the power supply or lifting mechanisms occurs.

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- The form structure shall be maintained within all design tolerances specified for plumpness during the jacking operation.
- The predetermined safe rate of lift shall not be exceeded.
- All vertical slip forms shall be provided with scaffolds or work platforms where workers are required to work or pass.

5.12.4 RE-INFORCEMENT STEEL

- Contractor shall ensure that re-enforcement steel for walls, piers, columns, and similar vertical structures are adequately supported to prevent overturning and collapse.
- Measures shall be taken to prevent unrolled wire mesh from recoiling. Such measures may include, but are not limited to, securing each end of the roll or turning over the roll.

5.12.5 REMOVAL OF FORMWORK

- Contractor shall ensure that forms and shores (except those used for slabs on grade and slip forms) are not removed until it has been determined that the concrete has gained sufficient strength to support its weight and superimposed loads. Such determination must be based on compliance with one of the following:
 - The plans and specifications stipulate conditions for removal of forms and shores, and such conditions have been followed, or
 - The concrete has been properly tested with an appropriate test method (e.g. American Society for Testing and Materials (ASTM) standard test) designed to indicate the concrete compressive strength, and the test results indicate that the concrete has gained sufficient strength to support its weight and superimposed loads.
- Re-shoring shall not be removed until the concrete being supported has attained adequate strength to support its weight and all loads in place upon it.

5.12.6 PRE-CAST CONCRETE

- Pre-cast concrete wall units, structural framing, and tilt-up wall panels shall be adequately supported to prevent overturning and to prevent collapse until permanent connections are completed.
- Lifting inserts that are embedded or otherwise attached to tilt-up wall panels shall be capable of supporting at least two times the maximum intended load applied or transmitted to them; lifting inserts for other pre-cast members must be capable of supporting four times the load.

5.12.7 LIFT-SLAB OPERATIONS

- Lift-slab operations shall be designed and planned by a registered professional engineer who has experience in lift-slab construction. The plans and designs shall be implemented shall include detailed instructions and sketches indicating the prescribed method of erection. They shall also include provisions for ensuring lateral stability of the building/structure during construction.
- Jacking equipment shall be capable of supporting at least two and a half times the load being lifted during jacking operations and the equipment shall not be overloaded.

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For the purpose of this provision, jacking equipment includes any load bearing component that is used to carry out the lifting operation(s). Such equipment includes, but is not limited to, the following: threaded rods, lifting attachments, lifting nuts, hook-up collars, T-caps, shearheads, columns, and footings.

- No employee, except those essential to the jacking operation, shall be permitted in the building/structure while any jacking operation is taking place unless the building/structure has been reinforced sufficiently to ensure its integrity during erection.

5.12.8 PRECAUTIONS DURING MASONRY AND CONSTRUCTION

- All construction site perimeters shall be fenced by hoarding boards, wire fence or any other method agreed upon by the Contract Holder and concerned HSE personnel.
- The boards provided shall be distanced so that no adult or child can pass between or under the hoarding boards. Weather conditions shall also be taken into consideration and therefore the base and structure shall be secure enough to withstand such conditions. Any damage or defect occurring to the hoarding or perimeter protection shall be repaired immediately and maintained for the duration of the project.
- Entry to the site shall be controlled at an access point. If possible, a second access/ egress point shall be provided to allow for escape during any emergency. Both openings should be capable of being closed and secured after working hours. Emergency contact numbers for the Contractor are to be posted on a durable board at the entrance to the site.
- A safety notice identifying the minimum mandatory requirement for PPE to be worn upon entering the construction site shall be posted at the entrance to the site.
- No vehicles or equipment shall be left unattended after working hours and such equipment must be removed to an area of safety and security to prevent access by children or any other unauthorized persons.
- Whenever a masonry wall is being constructed, Contractor shall ensure that a limited access zone is established prior to the start of construction. The limited access zone shall be as follows:
 - Equal to the height of the wall to be constructed plus 4 feet, and shall run the entire length of the wall;
 - On the side of the wall that will be not be scaffolded;
 - Restricted to entry only by employees actively engaged in constructing the wall; and
 - Kept in place until the wall is adequately supported to prevent overturning and collapse unless the height of wall is more than 8 feet and unsupported; in which case, it shall be braced. The bracing shall remain in place until permanent supporting elements of the structure are in place.

5.13 EXCAVATION AND MICRO-TUNNELLING

An excavation is any man-made pit, trench, hole, or cut into the ground formed by the removal of earth. Potential hazards include, but are not limited to cave-ins, hazardous atmospheric conditions, and rupture or contact with a live flowline or utility installation

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All excavation and micro-tunnelling on QP worksites shall comply with the following minimum rules as well as the operational area-specific Excavation Procedures (see IPS-OPS-023, 032, and 036)

- The Contractor shall ensure that no Excavation work shall be carried out without the issue of an Excavation Permit.
- The locations of flowlines and utility installations shall be established prior to beginning excavation and micro-tunnelling operations.
- For excavations over one meter in depth an entry to Confined Space Permit shall be required in restricted areas, because of the potential for flammable and or toxic gases and Oxygen deficiency.
- Contractor shall use metal/ cable detector to confirm that there are no underground utility services prior to excavation.
- Manually excavated trial pits shall be carried out prior to mechanical excavation when there is a doubt that buried utilities are likely to be present.
- Any buried cables or pipelines unexpectedly encountered during excavation work shall be reported immediately to the QP site representative or Contract Holder and the work shall cease.
- Where, because of the nature, shape and slope of the excavation, material is liable to fall more than 1.3 meters (4 ft.) onto a person working, the sides of the excavation shall be adequately shored.
- Shoring shall be rigid and without holes or openings, and be properly braced with support structure.
- The shoring of every excavation where men are to work shall be examined each day by the Contractor's Site Representative named on the excavation permit.
- Excavated earth shall not be stored close to the trench edges and a minimum distance of at least one and a half times the depth of the trench shall be observed.
- No load, plant or equipment should be placed or moved near the edge of any excavation where it is likely to cause the collapse of the side of the excavation.
- Excavations in which persons are working and into which a person is liable to fall shall be suitably protected by a barrier. If the excavation is to remain open after dark, warning lights shall be placed around the excavation to warn others of its presence.
- Temporary crossings over the trench shall be at least 609 mm (2 feet) wide and sufficiently strong with a railing on one side.
- The Contractor shall be responsible for the provision of all barricades, roping off and the provision of flashing lights as is required for the safety of persons and vehicles.

5.13.1 MICRO-TUNNELLING

This is also known as mechanized pipe jacking using remote control and involves pushing of a rigid pipe into the ground into a tunnel bore that has been pre-excavated. Generally this is carried out from a shaft which has been sunk from ground level to the depth where the pipe jack pipe has to be installed.

Typically Pipe diameters ranging from 200 – 2500mm are installed at depths where excavation trenches are quite expensive or where obstacles such as buildings, roads, rivers and other surface facilities make micro-tunnelling the installation method of choice.

Micro-tunnelling is widely employed for the installation of all types of utilities including Pipelines (Gas, Oil, water, Sewer), electricity and telecommunication cables.

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- The pipes that are utilized in micro-tunnelling shall be designed to accommodate the permanent loading of ground, inside and outside liquid pressure, and the installation jacking pressures.

5.14 HSE IN DRILLING AND WELL SERVICING OPERATIONS

5.14.1 GENERAL

In addition to complying with the requirements in this section, the Contractor shall comply with the requirements of the QP Drilling Department's HSE Management System including the Environmental management system. Compliance to HSE requirements in the Drilling Operations and Completion Manuals, QP Corporate philosophy for fire and safety (QP-PHL-S-001), as well as those specified in the contract agreement shall be mandatory.

A. EMERGENCY POWER

All rigs shall have an independent generator which will start automatically in case of main power failure and of sufficient capacity to provide all emergencies and essential services in the event of loss of the main generator. The generator as well as other electrical equipment shall be grounded in accordance with good practice.

B. GAS DETECTION SYSTEMS

All onshore, offshore rigs, and marine locations shall have H₂S and LEL gas detection fixed monitoring with audible and visual alarm system connected to emergency power. Head sensors shall be covering the drill floor, bell nipple, well head area, mud pits, shale shaker areas and A/C air intake. The following portable gas detectors shall be provided:

- Two multi gas detectors (LEL, H₂S and O₂)
- Two tripod type area gas monitors with alarms (H₂S & LEL)
- Adequate number of personal H₂S gas detector

All fixed and portable detectors shall be certified and calibrated by qualified third party every six months

C. PERMIT-TO-WORK SYSTEM

The Contractor shall be required to obtain Permit-to Work as per QP PTW procedure for any non-routine work such as:-

- Hot Work of any type.
- Any work which directly affects the safety of personnel or the operation of safety/emergency systems, if it is not part of the well programme requirements.
- Disconnection or opening of any closed pipeline or vessels containing flammable or toxic materials, if it is not part of the well programme requirements.
- Entry into confined space.
- Electrical work of any nature outside daily routine maintenance.
- Use of radioactive materials unless used as part of the well programme requirements.
- Use of explosives, unless used as part of the well programme requirements.
- Non-routine maintenance or operations.
- Drilling Contractors shall implement their own PTW system after the worksite QP production department has issued the handover certificate to Drilling department. QP PTW system shall be implemented during rigless operations and Simultaneous operations (SIMOPS) as per QP document numbers IP-OPS-061 and GD-OPS-063.

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D. SAFE WORKING PRACTICES

Contractor's HSE management system shall include procedures dealing with critical operations such as Job Safety Analysis, Task risk assessment, etc. These shall be established and followed.

E. WELL CONTROL AND BLOWOUT PREVENTION

Tool Pusher, Drilling Supervisor, Driller and assistant Driller shall possess a valid certificate in well control and blowout prevention issued by a recognized institute and accepted by QP Drilling Department.

Contractor shall fully understand and comply with the following QP drilling blow-out contingency plans: EM-DR-001 for offshore and EM-DR-002 for onshore.

F. FIRE FIGHTING

- All Personnel shall receive training in basic fire fighting.
- Fire and rescue teams shall receive advanced fire fighting training.

G. FIRST AID

All supervisory personnel shall possess a valid first aid certificate.

I. HAMMER UNIONS

Never make up hammer unions unless they are clearly marked as to their type to ensure the make up is compatible. If in doubt, a "Roughneck Saver" (go/no-go gauge) shall be used to determine the hammer union type and the hammer unions then clearly marked before make up.

Failure of the connection can create serious HSE hazards including metal projectiles and the release of high pressure, and possibly toxic fluids.

J. FIRE PUMPS

Fire pumps shall be capable of delivering 100% of capacity to any one fire area. 100% redundancy of fire pumps shall be available. Contractor shall comply with QP Corporate philosophy for Fire and Safety (DOC. No. QP-PHL-S-001).

K. USE OF PICKUP / LAYDOWN MACHINE

- Personnel shall not be on the catwalk or under the Vee-door area while the laydown/pickup machine trough is in operation. If work needs to be performed in this area, the laydown/pickup machine shall be shut down completely and the trough secured.
- The driller shall pay close attention while lifting joints of casing out of the pickup/laydown machine trough in anticipation of potentially short joints, which swing out of the trough quicker than long joints
- Personnel shall never place hands on the floor pole of the pickup/laydown machine
- A drill collar clamp shall be used for securing the floor pole of the pickup/laydown machine pole in the mouse hole and a guard must be provided to cover the clamp and mouse hole

L. DRIP PANS

Drip pans shall be used under equipment, motors, etc. to contain any leaking hydraulic fluid, oil, transmission fluid, etc.

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M. RIG FLOOR TOOLS FOR RUNNING TUBULARS

The following shall apply with respect to tools such as slips and tongs which are used for running tubulars on the rig floor:

Slips:

- Shall be properly maintained (lubricated as needed).
- Shall be handled by a minimum of two people to lift.
- Shall never be kicked into place.
- Broken or worn slips shall be replaced.
- Dies shall be checked regularly, kept clean/sharp, and replaced as necessary. Broken dies shall be replaced and correct keepers used. A full-face shield shall be worn when replacing dies.
- Original equipment replacement handles shall be used.

Tongs:

- Tong counterbalance weights shall be properly maintained (weight balance and well lubricated) for vertical movement of the tongs.
- Tong counterbalance weight baskets shall be equipped with a means of completely securing any weight objects placed in the basket.
- The tongs shall be snubbed (1" snub line) to an anchor post.
- Safety switches shall be installed on power tongs to ensure that they are not operated unless the tong doors are closed. In addition, the doors that close the front of the tongs shall have a positive latching mechanism to keep the door shut.
- Personnel shall position themselves clear of the arc of the tongs while making up or breaking out tubulars.
- Latches shall always be clean and lubricated.
- Dies shall be checked regularly, kept clean/sharp, and replaced as necessary. Broken dies shall be replaced and correct keepers used. A full-face shield shall be worn when replacing dies.
- A piece of chain or other material shall never be used to make the tongs "bite". Always use proper size jaws for the pipe being used.
- Tongs shall never be latched around tubulars that are moving.
- Tongs shall be hung in the mast so that they swing away from drill pipe when unlatched. Tongs safe handles/pinch points shall be properly marked accordingly.
- When not in use, tongs shall be hooked back in the derrick corner.

N. COILED TUBING

Any operations with coiled tubing in a potentially live well must be treated in the same way as any conventional well control requirement along with its associated BOP equipment.

Any coiled tubing operation with other proximate wells producing must be treated as a concurrent operation and subject to concurrent operations restraints and safety precautions.

Coiled Tubing fishing operations must be detailed in a clear coiled tubing programme specific to the application and site conditions.

Every coiled tubing unit shall maintain a full 'Reel Utilisation Data Sheet' which includes the following historic data:-

- Type of work done
- Depths run
- No. of cycles (tubing passed through gooseneck).

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- Welds.
 - All welding carried out on coiled tubing must be fully documented giving details of subsequent X-ray results and Rockwell hardness tests.
- A 'Tool Box' meeting must be held prior to each coil tubing operation identifying responsibilities and emergency response procedures.
- Incorporation of a mechanical locking device on the main coiled tubing reel is advisable.

O. ACIDISING

During the use of acids for stimulating production from a well the safety precautions detailed below should be observed:

- All chemicals should be transported, stored and used in accordance with the QP Hazardous Materials Manual. The Material Safety Data Sheet (MSDS) of the chemicals must be made readily available on site for the handlers.
- Piping from the pumping unit to the wellhead should be fitted with a non-return valve, as near as possible to the wellhead.
- A pressure test of not less than 1.5 x the maximum expected treating pressure should be made on all piping and connections prior to use.
- Supply of fresh water must be available for washing down protective clothing and personnel.
- Acid containers shall be transported / lifted inside a certified designated lifting container which shall contain any incidence of acid leak and protect the acid container from accidental penetration.
- Proper HSE warning signs shall be posted around the acid lifting container.
- On completion of acidizing operations all equipment should be thoroughly washed inside and outside with fresh water.

P. PERFORATING AND OTHER WIRELINE OPERATIONS INVOLVING EXPLOSIVES

- Signs shall be posted at the location entrance notifying that explosives are in use.
- Nighttime perforating operations are not recommended due to lighting constraints, extreme caution is required concerning all after dark decisions.
- Explosives shall be handled only by qualified personnel designated by the Contractor performing the operation. All non-essential personnel not involved in handling the explosives are to remain outside of the immediate work area.
- All two-way radios, telephones, welding machines and other electrical power sources located within 500 feet of the wireline operation involving explosives shall be turned off.
- Onshore, Electric line truck shall be grounded to the wellhead before operations begin.
- Hazards from static electricity that can develop from blowing dust should be evaluated and proper precautions taken.
- The wireline shall be isolated from the firing panel until the explosives reach a minimum depth of 200 feet. The explosives shall be locked out and shorted out above 200 feet when removing "live" explosives from the wellbore.

Q. STORAGE OF EXPLOSIVES

The local laws and regulations governing the storage and handling of explosives shall be observed.

Explosives and detonators shall be stored in separate containers and stored in a building located at a safe distance from stores containing flammable materials. Non-explosive materials should not be stored in the same building.

All possible precautions shall be taken against accidental fire or explosion.

Access to the explosive store shall be controlled and full record shall be kept of outgoing and incoming stocks.

General rules to be observed:-

- Do not smoke, strike matches or use an open flame lighter in the vicinity of explosives. Use only electric flash lights.
- Do not leave explosives where they may be exposed to flame, heat, spark or impact.
- Do not expose explosives to direct sunlight.
- Do not leave explosives where un-authorized persons can access them.
- Do not fight a fire in a building or vehicle containing explosives.
- Keep well clear until the fire is completely out.

5.14.2 EQUIPMENT SPECIFICATIONS

Unless otherwise specified, drilling equipment shall be in accordance with the following specifications:

API Spec. 4A	Derricks and Masts.
API Spec. 5A	Casing, tubing and drill pipe.
API Spec. 5B	Threading, gauging and thread inspection.
API Spec. 6A	Wellhead equipment
API Spec. 7	Rotary drilling equipment.
API Std. 8A	Drilling hoisting equipment.
API Spec. 9B	Wire rope.
B.S. 5500	Pressure Vessels.
API RP520	Pressure relief systems.
ANSI B31.3	Piping.
ANSI B 16.5	Flanges and flanged fittings.
ANSI B16-9	Butt welded fittings.
ANSI B2.1	Pipe threads (except API threads).
IP Part 1, Chapter 1	Electrical design codes.

Table 5.3: Drilling equipment specifications

- a) Equipment to be used in zones known or suspected of producing H₂S should conform to National Association of Corrosion Engineers NACE Standard MR-01-75 (1980 revision) 'Material requirement for Sulphide stress cracking resistant metallic material'.
- b) Specifications for equipment associated with drilling activities such as wireline, well testing, well killing, acidising, perforation, etc., shall be detailed in the relevant contract agreement.
- c) All waste management and disposal practices must be in accordance with QP Waste Management Procedures. Waste must be monitored and tracked

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accordingly. Adequate outstation Spill containment materials must be onboard any drilling unit at all times

- d) The entire rig floor and the whole derrick shall be regarded as hazardous areas and all electrical/mechanical machinery within these areas shall be certified explosion-proof. This requirement shall be in addition to the class approved hazardous area drawings.

5.14.3 SAFETY AND FIRE EQUIPMENT FOR OFFSHORE DRILLING UNIT

The safety and fire equipment and systems shall comply with:

- IMO (International Maritime Organization)
- MODU (Mobile Offshore Drilling Units)
- ABS requirements (Rules for building and classing of Mobile Offshore Drilling Units)
- QP requirements in the relevant contract agreement.
- The drilling unit shall be equipped with the following systems/equipment:

A. SAFETY EQUIPMENT PLAN DRAWING

Safety equipment plan drawings shall exist for each level of the drilling installation, including offices and accommodation, showing the location of fixed and portable safety equipment. On onshore rigs, the plan shall be approved by a qualified third party. On offshore rigs, the plan shall be approved and stamped by the classification society; distributed at accommodation levels, galley, rig floor, inside water tight container near helideck and other areas and as required. The Plan shall be regularly modified to reflect any modification, addition or replacement of fire, safety and survival equipment and as per class requirement.

These plan drawings shall indicate the locations of safety equipment as detailed below:

- Gas detector locations and coverage.
- Fire detector locations, with angle of coverage in the case of ultraviolet (UV) and infrared (IR) detectors.
- Fixed and portable firefighting equipment.
- Manual activation points for alarms, shutdowns, etc.
- Visual and audible alarm signal points.
- Breathing air sets locations
- Fire suites locations
- Rescue boat, Helicopter crash kit, axes, life saving and fire fighting equipment etc, as per Safety of Lives at Sea (SOLAS) Requirements for offshore rigs

B. EMERGENCY DIAGRAM

Emergency diagrams shall exist for each drilling installation, including offices and accommodation showing emergency facilities. These diagrams shall indicate the locations of:

- Escape routes
- Evacuation and assembly points
- Survival craft (offshore)
- Breathing Apparatus
- Firefighting equipment and activation points for fixed firefighting systems.
- Telephones and radios
- Emergency shutdown activation points
- First-aid kits
- Stretchers

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- Navigational aids (offshore)
- Helicopter landing facilities (crash box, wind sock etc.) (offshore)
- Exit signs

A composite diagram showing all areas of the installation shall also be displayed at one or more central points.

Hazardous area classification drawings shall be prepared for each drilling installation in accordance with British Standard 5345; part 2: "Classification of Hazardous Area", and FM Report 80-0470: "Classification of Flammable Gas Atmosphere".

Safety Signs:

Safety signs text should be in both Arabic and English.

Signs giving information required during an emergency e.g. exits, escape capsule stations, life vests etc., should be visible at night and during loss of normal power. This means either lighting connected to the emergency power supply through fire resistant cabling, or self-powered intrinsically safe signs.

C. SURVIVAL CRAFT (offshore)

Approved totally enclosed motor propelled survival craft (TEMPSC) with a total capacity of accommodating 200% of the total number of persons on board the drilling unit. Craft with capacity to evacuate 100% of persons on board (POB) shall be on each side of the unit. This will include control and other personnel on board. Preference will be given to drilling units that fit the survival crafts with breathing air cascade systems.

D. INFLATABLE LIFE RAFTS (offshore)

Approved inflatable life rafts, with a total capacity of accommodating 100% of the total number of persons on board the drilling unit shall be available.

E. RESCUE BOAT (offshore)

Approved fast rescue man-overboard boat placed under an approved launching arrangement.

F. LIFE JACKETS

SOLAS or USCG approved life jackets for the total number of persons on the drilling unit shall be available. In addition, a number of life jackets for at least 100% of the total number of persons on the drilling unit placed at the emergency stations. (Total – 2 x 100%). Each life jacket shall be fitted with a whistle, a light and retro-reflective tape and marked with Rig name and port of registry. Life Jacket donning instructions shall be posted in accommodation and muster stations.

In addition, at least eight life buoys (life rings) located at strategic points around the drilling unit. Each life buoy shall be attached to a self igniting buoyant light. It shall be capable of being lit by an electrical battery which operates on contact with sea water and is inextinguishable in water. Two shall be equipped with self activating smoke signals, two shall be provided with buoyant life line of adequate length as per MODU and SOLAS requirement

G. WORKING LIFE JACKETS (LIFE VESTS) (offshore)

An appropriate number of working life jackets (work vests) shall be required for any over-water work. Adequate number to be provided with emergency lights.

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H. ESCAPE LADDERS/ SCRAMBLING NETS

Escape ladders / scrambling nets shall be provided as per SOLAS and MODU code requirements.

I. FIRE PUMPS

Two fire pumps, each capable of providing 100% of Fire Water Requirement shall be provided. At least one of the fire pumps shall be diesel driven (independently from rig main power system). Emergency fire pump shall be provided in a separate space from the main fire pump. The Fire pumps shall be connected to independent tank.

J. FIRE HYDRANTS AND FIRE HOSES

To meet Mobile Offshore Drilling Unit (MODU) codes and standards

K. SPRINKLER SYSTEMS

(i) Drill floor

A fixed spray system water deluge capable of covering below drill floor area with a water density of 12.2 Litres per minute per square meters is to be provided.

(ii) Accommodation

Accommodation shall be fitted with:

- Fire barriers
- Smoke detector
- Automatic water sprinkler system
- Alarm system
- Escape routes
- Emergency lighting
- Manual call out points

L. FIXED FIRE EXTINGUISHING SYSTEM IN MACHINERY SPACES, IN SPACES CONTAINING FIRED PROCESSES AND HELICOPTER LANDING AREA.

To meet MODU Code Standards, Mud pits room and paint store shall be protected with adequate fixed fire extinguishing system, where the galley range hood shall be protected with a CO2 system as per SOLAS and QP requirements.

M. PORTABLE FIRE EXTINGUISHERS

Dry powder portable extinguishers required for general risk. Portable CO2 extinguishers required for kitchen, office / accommodation and electrical areas.

N. GAS DETECTION SYSTEMS

Combustible hydrocarbon and hydrogen sulphide detection and annunciation systems are to be provided. The following work areas are to have a matrix of both combustible gas and hydrogen sulphide detectors installed.

- Drill floor
- Bell Nipple
- Mud pit area
- Shale shaker area
- Above or around flow lines
- A/C air intake

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- One mobile head sensor for each gas type with visual and audible alarms connected to the gas detection monitoring system shall be ready to be placed at wellhead area where the Rig will be in service.

The combustible gas and hydrogen sulphide detectors are placed on a center line spacing not exceeding 3.65 meters (12ft)

The combustible gas detectors are to be connected to an audio/visual alarm system with indicators on the drill floor and at other normally manned areas. The alarm system is to clearly indicate the location of the gas hazard. The combustible gas detectors are to alarm at 20% lower explosive limit (LEL) and at 50 LEL. The hydrogen sulphide detectors are to alarm at 10ppm and 15 ppm.

O. FIRE DETECTION SYSTEM

Automatic fire detection connected to an audible/visual alarm system is required for all parts of the rig where there are flammables, including living quarters, electrical control room, paint store, machinery spaces and diesel storage. Manual call point system covering all parts of the drilling unit is required.

P. COMPLETE FIREMAN'S OUTFIT TO INCLUDE BREATHING APPARATUS AND FIREPROOF SUITS

The minimum requirement is 8 suits. 4 are mandatory as per SOLAS requirements.

Q. HELIDECK

Helideck structure with all safety and fire equipment shall comply with ICAO (International Civil Aviation Organization) Annex 14 and CAP 437 (Civil Aviation Publications) and shall be inspected and approved by the Helicopters Company working for QP. Contractor is responsible for obtaining this approval and shall present the evidence of approval to QP.

R. AIR BREATHING SYSTEM

Cascade system shall be provided on offshore drilling rigs (as required in onshore rigs) to provide breathing air for 100% of POB breathing at the same time and for minimum of one hour. With manifolds and connections to the cascade system in the following areas as required: Muster areas, life boats, Mud pit area, shale shaker area, rig floor, monkey board, mud mixing area, wellhead platform, cement unit, at each crane and at engine room.

Cascade system shall be hydro tested and Certified by manufacturer's approved third party.

18 x 30 minute BA sets. Positive pressure type full face mask with facilities to be connected to cascade system. Rescue team leaders Breathing Apparatus sets shall be provided with built in communication device.

Quick fill arrangement shall be available.

"Pigeon holes" type storage arrangements for emergency escape BA sets to be available at every muster station.

15 minute escape breathing sets (Full face mask with positive pressure type) 150% of the total number of persons on the drilling unit with facilities to be connected to cascade system

All BA sets shall be regularly inspected, maintained. Cylinders shall be hydro tested as per manufacturer requirement.

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S. AIR COMPRESSOR FOR BREATHING AIR

Two breathing air compressors (one electrical, one diesel) are required for charging the cascade system and B.A. cylinders. The air compressors must be equipped with filters, dryers and air quality monitoring system. They shall also be provided with an automatic shut off at 0.1ppm H₂S.

T. EMERGENCY SHUTDOWN SYSTEM

An emergency shutdown system shall be available at two separate remote locations (outside machinery spaces and control room).

U. PORTABLE GAS DETECTORS

- 12 x personal H₂S monitor with two H₂S generators.
- 2 x triple portable gas detection unit (H₂S, O₂ and flammable).
- 2 x gas sampling pumps plus appropriate type and number of sampling tubes.
- 2 x area gas monitor (tripod type) for H₂S and combustible gas with audible and visual alarm.

Note* And any other safety and fire equipment specified in the relevant contract agreement.

** All portable gas detectors shall be calibrated every six months and annually certified by third party.

V. SEWAGE TREATMENT SYSTEM: A sewage treatment unit should be on board to ensure all sewage effluent is treated to within local regulatory requirements before it is discharged into the environment.

W. OIL AND WATER SEPARATOR UNIT: The Rig unit should have closed drain system and an oil water separator that has automatic shut down facility to ensure separation of oil from water before discharge as per SOLAS requirements.

5.14.4 ONSHORE DRILLING UNITS

In addition to the general requirements, the following requirements shall also apply:

A. SITE PREPARATION

The Contractor shall be required to take practicable means to minimize or avoid any detrimental effect on the surrounding environment by virtue of the construction of the location or the operation of the Drilling Rig.

B. SITE SIZE

The site should be sized to contain all equipment and buildings, storage, workshops etc.

C. DRAINAGE

Drilling sites and camps shall have adequate drainage system.

D. SEWAGE AND WASTE

Arrangements shall be made for septic pits and proper discharge of effluent. Any waste should be collected and contained in specially supplied waste skips. Waste oil from pumps or other machinery shall be trapped and collected and disposed of properly, (see QP Waste Management System).

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E. ROAD VEHICLES AND MOBILE PLANT

Only diesel fueled road vehicles and mobile plant fitted with spark arresters shall be used in QP restricted areas. Petrol vehicles should be parked outside the rig boundary. All electric / diesel driven machinery shall be certified to be explosion-proof if they are to be used within hazardous areas.

F. SOURCES OF IGNITION

Naked lights, unprotected electrical equipment, smoking and all other sources of ignition are prohibited on all drilling/well sites unless in clearly marked designated areas. Non-intrinsically safe Cell phones are also prohibited.

G. FLARE AND FLARE PITS

Flare and Flare pits shall be located at a safe distance from the well, gas/oil separator, site drainage or other possible source of ignitable vapours.

H. NOXIOUS GASES

Means shall be provided to ensure that noxious gases are safely vented or routed to flare.

I. ACCESS CONTROL

Access control shall be at entrance to ensure that unauthorized personnel are not allowed into the rig boundary and also records are maintained on the number of persons within the rig boundary at a time.

5.14.5 ADDITIONAL REQUIREMENTS FOR DRILLING RIGS

1. All diesel operated engines shall be fitted with spark arresters at exhaust, and if operated in specified hazardous zones, they shall be certified to operate as per the classified zone (spark arresters to be fitted on engine exhaust and automatic shut off (Chalwyn) valves on air intake.)
2. Rig emergency plan/ procedures shall be available and shall be regularly reviewed and updated. It shall include emergencies such as Fire, H2S, Man overboard, oil pollutions emergency, etc. Rig Station Bill (Fire and H2S) shall be posted on all decks and in all cabins. They shall contain all emergencies including H2S and fire emergencies, alarm signals, muster areas, nearest exits and allocated lifeboat / life raft.
3. The muster stations shall have means of two-way communications with control room and "T" card system or equivalent method to facilitate counting of POB.
4. Emergency power shall be connected to all embarkation station lights on deck and over side, "T" card boards, gangway and fire & gas detection systems in addition to all spaces, alarms, escape routes, fire pump, and equipment as required by MODU CODE.
5. Rope ladders and scramble nets shall be fitted at life raft and lifeboat stations.
6. The Rig shall be equipped with 2 approved and certified personnel transfer baskets for use with the cranes.
7. One (1) Emergency Position Indicating Radio Beacon (EPIRB) shall be provided to comply with Global Maritime Distress and Safety System (GMDSS) and fitted with hydrostatic release.
8. One (1) portable radar transponder (SART) shall be fitted in each lifeboat and two (2) shall be available on the bridge, stowed in a way to be taken rapidly to life rafts.

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9. Fire Blankets shall be provided in the machinery spaces and galley.
10. The Rig shall have a designated air-conditioned hospital/sick room equipped with a treatment table (accessible from both sides), suitable lighting powered by mains and emergency sources, medical cabinet (locked) for medicines and equipment (as per QP inventory list), two oxygen resuscitator sets and two full spare cylinders with valid annual inspection certificates and hydro test certificates, two (2) Stretchers, one shall be a Para guard type designed with a four-point lift assembly and casualty restraints suitable for helicopter winching. This room shall be connected to Rig internal telephone system and easily identified on the telephone list.
11. First Aid Boxes shall be distributed around the Rig in a ratio of one for every ten (10) persons on board.
12. All escape routes, exits and locations of all safety and lifesaving appliances (extinguishers, axes, life jackets, BA sets...etc.) in the accommodation and engine room shall be marked with photo luminescent tapes and signs and kept clear of all obstructions.
13. Paint locker shall be properly constructed with:
 - a) Certified explosion proof powered ventilation.
 - b) Certified explosion proof fire detection system.
 - c) Certified fire extinguishing system.
 - d) All electric fixtures to be certified explosion proof.
 - e) A portable fire extinguisher to be placed outside the entrance.
 - f) Warning sign posted at entrance.
14. The Emergency generator shall be capable of supplying power for up to eighteen hours for emergency lighting, communication equipment, fire/gas alarms and detection equipment and running one fire pump. Automatic start shall be fitted taking no more than forty-five (45) seconds to come on line. Weekly functional tests shall be logged
15. Certified non-conducting rubber matting shall be placed around electric switchboards.
16. Air receivers shall be marked with Safe Working Pressure and have valid hydro test Certificates. Their safety relief valves shall be calibrated and certified annually.
17. Helideck Landing Officer shall be in attendance during landing and take off. Helideck Landing Officers shall wear a red safety vest and a radio with headset to communicate with the pilot.
18. Adequate water cooling system shall be installed for protecting the Rig sides, lifeboats, helideck and jacking system from heat radiation during well testing and flaring and 2 water monitors at the aft end protecting the wellhead platform. Independent pump(s) other than the fire pump(s) shall feed this system.
19. Contractor shall confirm that all electrical fixtures / equipment installed at the drill floor and the whole derrick shall be certified explosion proof type in addition to all other classified hazardous zones as per API.
20. All outdoor electric fixtures, switches, socket and plugs in non-hazardous areas shall be of weather proof type and be maintained as such.
21. Preventive Plan Maintenance Procedures for all mechanical and electric equipment / fixtures with maintenance log shall be available onboard the rig.
22. The galley and stores shall be kept clean and infestation free at all times. The camp boss shall ensure that the catering staff maintains high standards of galley and personal cleanliness at all times.

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23. Contractors shall maintain a program for testing the medical fitness of their employees at: pre hiring and during employment course. Medical fitness tests shall be conducted minimum every two years.

Note: The items listed in nos. 4,5,6,7,8,10,14 & 18 above are required for offshore rigs only.

5.15 STEEL ERECTION

This term means the construction, alteration or repair of steel buildings, bridges and other structures, including the installation of metal decking and all planking used during the process of erection.

Steel erection activities include hoisting, laying out, placing, connecting, welding, burning, guying, bracing, bolting, plumbing and rigging structural steel, steel joists and metal buildings; installing metal decking, curtain walls, window walls, siding systems, miscellaneous metals, ornamental iron and similar materials; and moving point-to-point while performing these activities.

Steel joist is defined to mean an open web, secondary load-carrying member of 144 feet (43.9 m) or less, designed by the manufacturer, used for the support of floors and roofs.

"Structural steel" means a steel member, or a member made of a substitute material (such as, but not limited to, fiberglass, aluminum or composite members). These members include, but are not limited to: steel joists, joist girders, purlins, columns, beams, trusses, splices, seats, metal decking, girths, and all bridging, and cold formed metal framing which is integrated with the structural steel framing of a building.

The following rules shall apply during steel erection on QP contracts:

- Permanent floors must be installed as the erection of structural steel members progresses.
- Safety nets shall be installed around the perimeter of the structure to prevent workers from falling more than 25 feet (7.62m). On buildings or structures not adaptable to temporary floors, and where scaffolds are not used, safety nets shall be installed and maintained whenever the potential fall distance exceeds 25 feet (7.62m). The nets shall be hung with sufficient clearance to prevent contact with the surface of structures below.
- The floor that is being used as the erection floor must be solidly planked or decked over its entire surface except for access openings.
- A safety railing of ½ inch wire rope or equal must be installed around the periphery of all floors.
- Two bolts or rivets must be secured at each connection before a steel element is detached from the hoist.
- Structural steel members shall not exceed a span of forty feet without a center bridging.

5.16 PROCESS SAFETY

QP business involves processes which may lead to the presence of highly hazardous chemicals (liquids or gases) that may be toxic, flammable, explosive or corrosive. QP shall, in accordance with best practice such as the United States Occupational Safety and Health Administration (OSHA) standard (29 CFR 1910.119), inform Contractors of the hazards likely to be present at a facility and the process safety management measures in place to control them. Site-specific hazards will be discussed with the

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Contractor before work begins. The Contractor shall ensure that their employees are trained to perform their jobs safely, and that they are instructed in the process hazards and emergency action plans for the facility. The Contractor shall maintain documentation of employee training which shall include employee identification, training dates, and description of the training and the means used to verify the employees understanding.

Contractor shall ensure that their employees follow all safety requirements, and the safe work practices listed in QP's written operational procedures. The Contractor shall advise QP of any unique hazards resulting from the performance of their work. QP appreciates all employees' input towards enhancing the safety in its facilities.

5.17 MATERIALS HANDLING AND STORAGE

5.17.1 LIFTING OF LOADS BY PERSONNEL

Improper lifting techniques, lifting a load that is too heavy, or lifting in the wrong position, can result in injuries. Contractor shall train its personnel on proper lifting techniques and ensure that they follow the guidelines below to lift safely:

- Make sure the area is clear of tripping hazards.
- Face the load you're about to lift.
- Bend your knees.
- Keep the load close to your body.
- Keep your back straight.
- Use your legs, not your back, to lift the load.
- Do not twist your body while carrying a heavy load.
- Do not try lifting a load that is too heavy - ask for help.
- When lifting a load with another person(s), communicate with the other person(s) before lowering your end of the load.

5.17.2 USE OF FORKLIFT

Only trained and qualified personnel shall operate forklifts. Evidence of certification shall be provided to QP by the Contractor for each Contractor employee who might operate a forklift. All forklifts shall be strictly maintained in accordance with the manufacturer's recommendations.

- Forklifts shall only be used to lift loads within their certified capacity.
- Loads shall be correctly placed and secured on the forks to avoid tipping forwards or sideways.
- Wherever possible, forklifts shall be driven with the forks in the lowered position and with the mast slightly tilted back, with care taken to avoid scraping the fork heels on the ground/deck.
- Movement with loads in excessively raised positions shall be avoided to minimise the danger of toppling, especially on uneven surfaces and while cornering.
- Unauthorized personnel shall not ride on forklifts. Each forklift will be required to have a "NO RIDERS" sign in a visible area of the forklift.
- The forklift shall have an alarm signaling when vehicle is backing up.
- When a forklift is left unattended, the forks shall be fully lowered, controls put in "off" or "neutral" position, the power shut-off, and the brakes set. Wheels shall be chocked if the forklift is parked on an incline.
- The forklift operator shall ensure that the forklift's wheels are properly chocked before unloading.

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- Seat belts shall be worn when operating a forklift equipped with a rollover protection device.
- Stacking and unstacking on inclines shall never be attempted.
- Rapid acceleration, hard braking and sharp cornering which increase the risk of load tipping shall be avoided.
- Operators shall exercise caution and drive slowly on slopes, uneven and damaged surfaces.
- Forklift and forklift operator shall be in compliance with the QP Lifting Regulations.

5.17.3 MATERIAL STORAGE

Stacking and un-stacking of materials can lead to serious incidents. Contractor shall ensure that all necessary precautions are taken to prevent incidents.

A. STACKING

When stacking or planning materials stacking, the following factors shall be considered:

- The permissible floor/deck loading and the design load-handling capability of storage racking and binning.
- The site layout with adequate walkways and aisles.
- Materials routing in and out.
- Method of stacking to be used.
- Available or required materials handling facilities and equipment.
- Area lighting with avoidance of shadow areas.
- Pallet design and load bearing capacity.
- Factors to be used to determine the size of stacks shall include volume and area available, and size, bulk, weight, type, rigidity and fragility of materials to be stacked.
- Loaded pallets shall not normally be stacked more than three high.
- Stability of stacks shall be determined by:
 - A safe ratio of height to base area.
 - Sound interlocking of the materials, either naturally or artificially.
 - How much of the aggregate weight is borne by the components in the lowest tier of the rack.
 - Good placement of every component in a stack, with no overhangs.
- Heavy items of equipment stored in custom-built crates or containers shall not be stacked one on top of the other (only the bases of these containers are designed to bear the load of the contents).
- Stacks shall be positioned at least 0.5m from walls/bulkheads and shall not allow footing for persons to gain access to unguarded machinery.
- Racking shall be inspected periodically to determine its condition and confirm its continuing capability to support the loads for which it was constructed.
- Only purpose-built pallets in good condition and without loose or broken boards and blocks shall be used for transporting loads. Damaged pallets shall be taken out of service and returned for repair or disposal.
- Loads shall be secured on pallets with tension strapping, plastic shrink-wrap, cargo netting or, alternatively, using a box pallet.

B. UNSTACKING

The majority of incidents involving the collapse of stacked materials occur when a stack is being taken down. During this activity, the following shall apply:

- One person only is responsible for the manner in which the stack is reduced.

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- If the person in charge had no part in the erection of the stack, he is to familiarize himself before work begins.
- The stack is to be taken down tier by tier without "taking bites" out of it.
- Tubular or other fencing around the stack is to be reduced in height as the stack is reduced.
- The area around the stack is to be kept clear of tripping hazards.

5.18 CONFINED SPACE ENTRY

A confined space is any enclosure having a limited means of entry and exit and not designed for continuous human occupancy. Examples include but are not limited to the following:

- Process vessels, tanks, bins, stacks, large pipes, pits, vaults.
- Any enclosure where the presence of air contaminants may be harmful to a worker and prevent his ability to escape unaided.

Confined space entry is defined as the act of physically entering a confined space. Entry covers not only complete body entry, but also when only the head is inserted for a quick visual inspection.

Entry in a confined space can expose personnel to one or more of the following hazards:

- Hazardous atmosphere such as toxic or flammable vapors.
- Oxygen-deficient atmosphere.
- Material, such as mud or sludge that has the potential for engulfing an entrant.
- An internal configuration such that the entrant could be trapped or asphyxiated.
- Inwardly converging walls or floors, which slope downward and taper to a small cross-section.
- Other air contaminants including hydrocarbon vapours or gases, vapours resulting from production operations or materials used in the confined space, etc.
- Physical hazards e.g. slippery surfaces that may hinder rescue operations, falling tools and objects, poor structural integrity such as loose sides of trenches, etc.

Under no circumstances shall an employee be allowed to enter a confined space without a properly completed and approved Permit-to-work. The Work Permit shall have a Sign-in/Sign-out sheet for entrants and the hazards shall be discussed with the entrant prior to that person entering the space.

All confined spaces that can be readily accessed and have the potential to contain hazards shall be barricaded or labeled "DANGER DO NOT ENTER - ENTRY PERMIT REQUIRED".

5.18.1 MINIMUM REQUIREMENTS FOR ENTERING CONFINED SPACES

In addition to the location-specific procedures, the following minimum requirements shall apply for entry into confined spaces:

- Confined space entry certificate and other appropriate work permits such as hot-work or cold work
- The air in a confined space shall be tested prior to a person entering the space for oxygen (O₂) content; Lower Explosive Limit (LEL); and hydrogen sulfide (H₂S) in that order with an approved and calibrated device by a person trained and certified to use the device.

Danger levels are as follows:

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- Oxygen (O₂) content below 19.5% or above 23.5%.
- Lower Explosive Limit (LEL) 10% of LEL.
- Hydrogen sulfide (H₂S) - 10 parts per million (ppm).
- If the air in a confined space is contaminated, the space shall be water flushed or purged with Nitrogen, or air as necessary until an acceptable working atmosphere is achieved prior to a person entering the space.
- When a person is in a confined space, ventilation into the space shall be provided at a rate of 3 air volume changes per hour. Mechanical ventilation via blowers, etc. shall be required if natural ventilation is not sufficient. Drilling/Workover Rig Specific Mechanical ventilation via bug blowers, etc. shall be required for mud tanks prior to entering and during the cleaning operation.
- One or more trained persons must act as a standby man whenever work is performed within a confined space. There shall be an effective means of communication established and maintained between personnel in the confined space and the standby man. Communication shall be visual, voice or a signal line.
- The standby man shall not leave his duty post for any reason while the entrant is in the confined space unless the standby man's replacement is already in position.
- Any rotating, agitating or other equipment that can present a hazard to the entrant within the confined space shall be Locked-off/Tagged-out at the equipment's power source and at the power switch prior to the person entering the space.
- An emergency response plan shall be drawn up and well understood by all role players. A lifeline for rescue shall be attached to the person entering a confined space. Care shall be used to ensure entanglement of lifeline will not occur.
- In completely enclosed spaces, such as tanks, a continuous atmospheric monitor shall be worn by the person entering the space.
- Drilling/Workover Rig Specific: Although not considered a confined space, vapor build-up and ambient temperatures in the mud tank area may require that blowers be installed in a position to adequately ventilate the area.
- NO ENTRY: Under no circumstances shall entry be permitted when:
 - The hydrocarbon concentration is greater than 10% of the LEL
 - Hazardous material such as acids or caustics are present
 - The toxicity of the atmosphere is immediately dangerous to life or health (e.g. H₂S is greater than 100 ppm)
 - Oxygen concentration is greater than 23.5% or less than 16.5%
 - An inert atmosphere is present

Upon completion of the permitted work, authorized personnel shall inspect the confined space to ensure that no tools, equipment, rags or other foreign objects have been left there before the confined space is sealed and the permit/certificate closed out.

5.19 MARINE SAFETY AND DIVING

5.19.1 MARINE SAFETY

5.19.1.1 GENERAL HSE REQUIREMENTS FOR MARINE VESSELS AND BARGES

The Marine and Offshore HSE Departments shall inspect all vessel(s) to ensure compliance with QP requirements, prior to entering into any agreement with the vessel owner or charterer and prior to mobilisation of Marine Craft to the field. This regulation covers general specification requirements of all marine vessels.

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QP chartered vessels, or vessels controlled by a Contractor, operating within QP's areas or using QP owned facilities shall comply with relevant QP regulations, SOLAS, Classification Society requirements and applicable National and International Codes, Standards, Conventions, Regulations.

Any vessel operating within QP's offshore Oil & Gas fields or intending to use QP owned offshore facilities shall be in Class and the vessel's safety equipment shall comply in all respects with the requirements of the **Safety Equipment Certificate** and the Class approved **Fire Control/Safety Plan**. The Classification Society must be a member of IACS and approved by QP.

All relevant Classification certificates, inspection records and any other applicable documents shall be made available onboard any vessels. Such approvals will not relieve the Contractor of any obligations or responsibilities.

Ship owners offering vessels for long term charter must have an HSE Management System.

All vessels shall develop **Emergency Response Plan**, which shall include **H₂S Contingency Plan** and shall forward the document to QP Marine/ Offshore Safety Department for review and approval.

- Contractor shall **fumigate** vessel/barge before entry to Qatar waters and arrange for re-fumigation at regular intervals to minimise insect infestation. Certificates attesting fumigation shall be submitted to QP.
- Vessels provided with **helideck** must be in compliance with ICAO Annex 14 and CAP 437 (Civil Aviation Publications) and shall be inspected and approved by the Helicopters Company working for QP. Contractor is responsible for obtaining this approval and shall present the evidence of approval to QP.
- **Only Diesel powered** Fast Rescue Craft shall be used at offshore locations. Transportation, Storage or Use of **Petrol is not allowed** at all offshore locations.
- Survival crafts/ life raft stations will be identified, equipped with rope ladders, on deck and over side emergency lights and launching procedure shall be displayed.
- Number of work vests provided onboard shall be equivalent to the actual number of work crew onboard.
- All vessels shall be equipped with positive pressure, full facemask **BA escape sets** (EN 139) of 15 minutes duration equivalent to 125% of maximum number of people onboard. These shall be inspected and certified annually by qualified third party.
- If marine vessels carry more than 50 persons, then a certified dedicated Safety officer and a medic shall be provided. Marine vessels carrying less than 50 personnel shall comply with contract specific requirement in this regard.

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- Approved, current, certified Fire Control/ Safety Plan shall be displayed in each deck level and in a highly visible easily openable weather proof marked container.
- Regular gas drills, fire drills, abandonment drills shall be conducted at regular intervals as per the approved HSE Plan and considering field operating conditions.
- Escape routes in the accommodation and engine room shall be marked with photo luminescent signs.
- All marine vessels fire hydrant, hoses and nozzles shall be in accordance with SOLAS regulation. A minimum of 2 hoses to reach any part of the vessel. All nozzles shall be of the dual purpose type.
- Emergency lighting shall be provided for escape routes, engine room, accommodation mustering station, Lifeboat stations and exits shall be properly marked and tested.
- All marine vessels shall have phone, paging system and public address system to meet the operations and emergency communication requirements onboard.
- Station bills will be posted on all decks and in all cabins which will contain alarm signals, muster points nearest exits and allocated life boat/ raft. The station bill will also contain information on H₂S emergency, duties and signal.
- Fire alarms, general alarms and H₂S alarms shall be adequate and loud enough to be heard in all areas, visual alarms to be fitted in areas of high noise. All alarms shall be identified i.e. H₂S, General, CO₂, Engines, Telephone.... etc.
- All vessels shall have adequate number of PPE onboard and provided to the crew for personal protection.
- Smoking is strictly prohibited in sleeping quarters and shall be limited to the designated smoking areas.
- All vessels shall have the following portable gas detection equipment which have been duly inspected, calibrated and certified:
 - 2 Nos. of Triple gas (H₂S, LEL, O₂) detectors.
 - 2 Nos. of personal H₂S detectors
- The above detectors shall be inspected and certified by qualified third party every 6 months.
- All marine vessels with respect to Pollution Control:
 - Shall comply with all International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) –International Maritime Organization (IMO), and QP Environmental Protection and Pollution Prevention Regulations and requirements.

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- Shall be fitted with a self-contained sewage treatment plant and comply with other requirements of MARPOL 73/78, Annex IV, Regulations for Prevention of Pollution by sewage from Ships
- Shall comply with all MARPOL 73/78, Annex V Regulations for Prevention of Pollution by Garbage from Ships.
- Shall be fitted with an oily water separator system for bilges and drain tanks. The system shall have alarms which activate when the overboard discharge oil content exceeds 15 ppm. The system shall also have holding tanks for retaining separated oil on board for subsequent controlled disposal.
- Air receivers on the vessel shall be marked with safe working pressure.
- The air receivers pressure safety relief valves shall be calibrated and certified once every two years.
- Machinery spaces, high noise areas shall be sign posted for use of ear defenders
- The switch board areas will have non-conductive rubber matting around, which are certified for the voltage being used.
- Workboats and Barges shall have a qualified Safety officer.
- The paint locker onboard shall comply with following:
 - a) Properly constructed with trays for containment.
 - b) Fitted with explosion proof powered ventilation
 - c) Explosion proof Air conditioner (if specified in tender document)
 - d) Fire detection system connected to the vessel's system
 - e) Certified Fire extinguishing system
 - f) Portable DCP extinguisher outside the door.
 - g) Warning signs and appropriate instructions.
- All lifting equipment shall comply with QP Lifting Equipment Regulations QP-REG-Q-001.
- All diesel-driven equipment on deck shall be fitted with "CHALWYN" valves on air intakes and spark arrestors on exhausts.

5.19.1.2 CERTIFICATION REQUIREMENT

The general certification requirements of the marine vessels operating in QP locations are as follows:

- Country of Flag registry
- Class Certificate and latest Hull Survey report from Classification Society
- Safety Construction
- Safety Equipment Certificate

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- Load line with valid inspection endorsement
- Cargo Ship Equipment Certificate or Statement of Fact from Classification Society
- Cargo Ship Radio Telephone Certificate
- Safe Manning Certificate
- Valid Certificates of Life Rafts and Hydrostatic Releases
- Annual Inspection Certificate for Fire Fighting Equipment (including permanently installed equipment)
- Totally Enclosed Motor Propelled Survival Craft (TEMPSC) and the Davits
- Fast Rescue Craft (FRC) and Davit
- Bi-Annual Inspection Certificate of Gas Detection (H2S and LEL) Monitoring and Alarm System.
- Annual Inspection of Fire Detection (heat and smoke sensors), Alarm System and Manual Call Points (MCP).
- Personnel Transfer Basket Certificate.
- Breathing equipment and oxygen resuscitators annual inspection certificates.
- Annual Inspection Certificates of Fixed and Portable Fire Fighting Equipment.
- International Oil Pollution Prevention Certificate
- Oil Record Book In Accordance With Marpol 73/78 Annex-1 Regulation 20.
- Lifting Equipment Certificates shall be as per QP Lifting Equipment Technical Regulations Doc. No. : QP- REG-Q-001 .
- All lifting and cargo handling equipment shall be examined at least once every 6 months by a QP approved Third Party Authority (TPA).
- Crane original capacity chart.
- Fumigation Certificate
- De-ratting Certificate.
- Helideck Certificates such as original load test certificate, Safety Net drop test certificate etc. and shall comply with ICAO Annex 14 and shall be inspected and approved by the Helicopters Company working for QP. Contractor is responsible for obtaining this approval and shall present the evidence of approval to QP.
- Certificates for Towing wires and other than Towing wires associated equipment.

5.19.1.3 TRAINING AND COMPETENCY REQUIREMENTS

All personnel employed on marine vessels contracted to QP shall be duly certificated and proficient in their assigned duties. Relevant certificates shall be available at all times for inspection. Some of these are detailed below:

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- All offshore crew or visitors shall possess valid Hydrogen Sulphide/Breathing Apparatus (H₂S/BA) Certificate issued by QP approved training provider.
- Contractor personnel travelling to and working at offshore locations shall be in possession of a valid Helicopter Underwater Escape Training (HUET) and Basic Sea Survival Certificate as per specifications of IP-SF-020 and IP-SF-02. This certificate shall be issued by a QP approved training provider in Doha or OPITO accredited training provider in other countries.
- Personnel handling TEMPSC as Commanders or Deputies shall possess Coxswain certificate
- All key personnel supplied by the Contractor or his nominated Sub-Contractor shall have proven competence and ability in using English language both oral and written
- There shall be trained and certified personnel in basic and or advance firefighting on vessel and they shall be familiar with operating the firefighting appliances and fixed system.
- Scaffolding supervisor and scaffolders shall have respective training completion certificate.
- Crane operators, Fork lift operators, Riggers and Banksman shall have a certificate of competency issued by a TPA recognized by QP, and the certificate must be approved by QP Materials and Facilities division (STI) of the Corporate HSE Support Department in compliance with QP Lifting Equipment Regulations QP-REG-Q-001.
- Food handlers shall possess a valid Food handler's Medical fitness certificate acceptable to Qatari Public Health Authorities.
- Radio operators shall have Radio Telephone certificate.
- Trained and certified Fire Watch personnel shall be onboard vessels, where hot work is carried out.

Vessels equipped with helideck shall have a trained and certified Helideck Landing Officer.

5.19.1.4. REGULATIONS

Any vessel including specialized vessels, barges and jack-ups, whether directly QP owned or chartered, or controlled by a Contractor but operating within QP's areas or using QP owned facilities shall comply with all national and International Codes, Standards and Regulations, including but not limited to:

- International Regulations for Prevention of Collision at Sea
- International Maritime Organisation (IMO) Tonnage Convention 1969
- 1974 Convention for the Safety of Lives at Sea (SOLA.S), and Protocol 1978
- International Convention for the prevention of Marine Pollution from ships (MARPOL 73/78)
- International Labour Organisation (ILO)
- All Laws and Regulation concerning vessels in Qatari waters.
- Procedure Guide for all Marine crafts operating in QP.
- QP Inter-departmental procedures relevant to Marine Operations.

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- Issued Marine circulars and standing instructions.
- QP procedures relating to particular craft and contained in this contract.
- QP issued Standards for transportation and handling of dangerous cargoes.

Ship owners offering vessels for long term charter must have an HSE Management system which covers shipboard HSE policies. A copy shall be handed over to QP Marine Department for approval at time of tendering.

5.19.1.5. EQUIPMENT ON BOARD VESSELS

In addition to requirements contained elsewhere in the Contract Agreement:

- Navigational Charts and Nautical publications on board shall be the complete set covering the entire working area, consisting of the latest edition British Admiralty with all relevant corrections made.
- Ample cargo handling and securing equipment shall be on board to ensure that any cargo carried is securely fastened for sea passage.

References: 1) IMO Code of Safe Practices for Cargo Stowage and Securing.

2) UKOOA / BOSVA Code of Supply Vessel Operations at Offshore Installations

- Accommodation on board vessels shall be maintained in a clean, tidy and pest free condition. Bedding shall be of a good quality and food of an acceptable standard.
- All ship's equipment so required for the contract or intended for the safety of the vessel shall be regularly serviced by a competent person and shall remain fully operational. Failure of any of the above equipment shall be reported immediately to QP Marine Department.

5.19.1.6. ADDITIONAL SAFETY AND ENVIRONMENTAL STANDARDS

- The vessel's crew must at all times wear the appropriate safety clothing as laid down in the QP HSE Regulations for Contractors and the British Department of Trade Code of Safe Working Practices for Merchant Seamen.
- Watertight closings, doors and vents shall be maintained in good working order and operate freely. Watertight doors must always be closed during sea passages.
- Emergency stops and fixed extinguishing systems shall be checked on a monthly basis.
- Garbage which is non-biodegradable shall be retained on board until the vessel arrives at a shore dumping facility. Garbage from Safety standby vessels (or from vessels on extended offshore work scopes) can be passed to Offshore Installations for disposal.
- Vessels shall only discharge bilges through an oil / water separator and shall retain any separated oil on board for controlled disposal.
- The crews of vessels required to carry dangerous goods shall take particular care when handling and transporting such items. It is the Master's responsibility to ensure that dangerous items are secured properly and all safety precautions have been taken. If the Master has any doubts concerning the nature of a particular cargo he shall consult the supplier or QP Marine Department for further details.
- Vessels carrying Liquid Nitrogen and other hazardous cargoes shall comply with the appropriate QP issued Procedures for Transportation and Handling.
- The Captain/Master of a vessel is at all times responsible for the safety of his vessel and crew, protection of QP property and the environment. Therefore he has the right to refuse a job which he considers dangerous or inadvisable. Any refusal shall however be accompanied by a satisfactory reason to support his actions.

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- Sewage shall not be discharged into the sea from vessels permanently manned by ten or more persons unless:
 - i. it has been comminuted and disinfected using a system approved by the appropriate authority and discharged at a distance of more than four nautical miles from the nearest land;
 - ii. it is discharged at a distance of more than twelve nautical miles from the nearest land or
 - iii) It has passed through a treatment plant approved by the competent authority; and in any case the discharge does not produce visible floating solids or discolouration of the surrounding water.

5.19.1.7. RECORDING AND REPORTING

- All vessels shall maintain a comprehensive Deck, Engine room and Official Logbook recording. In addition to normal operational information, detailed reports of accidents or incidents which may require further investigation should be recorded. Such accidents or incidents shall be reported immediately to QP Marine Department and a written report submitted at the earliest opportunity.
- Oil pollution incidents or sightings shall be reported immediately giving the relevant information including location, area covered, nature of oil, source of pollution, wind and sea conditions, and direction and speed of slick's movement.
- Vessels arriving, departing or intending to work in a QP controlled area shall keep the relevant authority advised of its movements. A V.H.F watch shall be maintained at all times on QP's WX-1 working frequency which shall only be used for calling, emergencies and short communications only.
- WX-3 or another Marine band frequency shall be used for extended conversations. All communications shall be made in clear, concise English language.
- All vessel activities shall be conducted in accordance with the QP issued "Procedure Guide for all Craft Operating in QP Oil and Gas Fields" and if deemed necessary, the Permit to Work System.

5.19.2 DIVING SAFETY

A. REGULATIONS

- All diving and diving operations conducted by, or for QP, shall be regulated by Marine Department and be shall be undertaken within the requirements laid out in the current United Kingdom Health and Safety Executive (UK HSE) diving regulations. All amendments, modifications, additions or replacement regulations shall also apply as and when they may be issued by the UK HSE. In the Statutory Instrument (SI) and the Approved Code of Practice (ACOP) any reference to HSC or HSE shall be interpreted as meaning QP. For commercial diving projects inland/inshore, which are related to work on offshore installations and pipelines, the Commercial diving projects offshore Diving at Work Regulations 1997 and associated approved code of practice International Marine Contractors Association (IMCA) codes; IMCA D 014, (International Code of Practice for Offshore Diving), IMCA D 010 (Diving Operations from Vessels Operating in Dynamically positioned Mode) and any current amendment thereof shall apply.
- These regulations, in conjunction with the Association of Offshore Diving Contractors (AODC) (now known as the International Marine Contractors Association (IMCA) recommendations, shall, in the absence of Qatari National Diving Regulations, form the basis for all diving operations undertaken for, or on behalf of, QP. These Regulations shall apply to all diving activities both in offshore and inshore operations.

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It is the Contractors responsibility to ensure that they are fully notified and aware of all amendments and addenda to the above mentioned regulations.

- Further more specific information is available in the QP document: Inshore Diving Regulations (OPS-REG-001) available on QP intranet.

B. DIVING PROCEDURES

- The Contractor shall submit full and comprehensive Diving and Operations manuals to the Corporation prior to mobilization for evaluation and approval. These manuals will include all the diving tables, both working and therapeutic, which the Contractor proposes to use and will also detail in full the Contractor's Emergency Procedures and Medical Resources relevant to Diving Operations in Qatari waters.
- Prior to commencement of any diving operations the Corporation will require to view the original certificates of diver training, UK HSE Certificate, AODC grading, First-Aid training and Divers Log Book etc., as detailed later in this document.

Note* For qualifications acceptable by QP for diving work, please refer to the QP document: Inshore Diving Regulations (OPS-REG-001)

C. GENERAL OPERATIONAL PROCEDURES

The following procedures together with the Contractors Operational Procedures shall apply to all diving operations:

- All offshore diving operations in the field shall be co-ordinated through the QP diving office on Halul and be carried out in accordance with the United Kingdom's Health and Safety Executive Regulations.
- All inshore operations in the field shall be co-ordinated through the inshore diving office presently based at Mesaieed and Ras Laffan and be carried out in accordance with Health and Safety Executive Regulations.
- Prior to commencement of any diving operations, the QP Representative and the Diving Supervisor will visit the control room of the facility and fully brief the QP-Plant Supervisor in all aspects of the intended site and work-scope. After consultation with the QP-Plant Supervisor, a Permit to Work shall be issued and endorsed by the Authorized Person (Operating Department Representative) and the Diving Supervisor, thus ensuring that all parties involved in the Diving Operation are mutually aware of each other's activities and responsibilities and have acknowledged the procedures and drills. The control room shall isolate all necessary intakes / outfalls that may endanger the life of the diver, and be kept informed of commencement and cessation of diving activity.
- On-site diving operations shall be co-ordinated between the Sponsoring Department Representative and the Contractor's (Senior) Supervisor in consultation with Marine Department. The diving vessel's Master shall be fully informed at all times by the Diving Supervisor of all aspects of the operation. The Diving Vessel shall display, in a prominent position, the internationally agreed flags, shapes or lights as is appropriate for the intended work site and inform all vessels in the vicinity that diving operations are in progress. The vessel's Master or Mate shall maintain a bridge watch at all times during the diving operation, and shall provide a 24 hour radio watch and look-out whilst in Qatari waters, irrespective of diving operations.

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D. DIVING TECHNIQUES

1) AIR DIVING:

- All compressed air diving carried out in Qatari waters will normally be surface orientated using a full surface demand spread, wet or dry bell as per current Health and Safety Executive Regulations.
- The use of self contained unsupplied breathing apparatus (SCUBA) equipment will NOT be allowed for either offshore or inshore locations. (Refer to DSM 5 / 94).
- Repetitive Diving will not be accepted as a normal operational procedure and bottom times will be in accordance with current Diving Safety Memo recommendations. The Contractor shall therefore ensure that the manning levels are sufficient for the programmed operation.

2) MIXED GAS DIVING:

- All Gas Diving carried out in Qatari waters will be in accordance with current Health and Safety Executive Regulations.
- Surface Orientated and Bell Bounce techniques may be utilized where the need outweighs the use of Saturation Diving. In the interests of safety and productivity, the Saturation technique is the preferred method.

E. DIVING PERSONNEL

1) DIVING SUPERVISOR

The Diving Supervisor is in charge of the on-site diving operation. He must be suitably qualified and fully conversant with the type of operation he is to supervise.

As a minimum, he shall have:-

- Certificate of Training. (Health and Safety Executive Regulations Part 1 or equivalent, Health and Safety Executive Regulations Part 2 for mixed gas operations).
- Supervisor's Certificate.
- Certificate of First Aid Training from a HSE approved establishment.
- Supervisor's Log Book.
- Diver's Log Book with certificate of Medical Fitness (if required to dive)
- Letter of Appointment.
- He shall have a good working knowledge of the English language, both spoken and written.

2) DIVERS

All divers, whether acting as diver, standby diver or tender should have a minimum three years of "Oil field" related diving, be qualified as a diver.

He shall have:-

- Certificate of Diver Training: Either Health and Safety Executive Part 1 qualification (now HSE Scuba with HSE Surface supply and surface supply top-up) or equivalent, or Health and Safety Executive Part 2 for mixed gas operations qualification (now called HSE Closed Bell).
- Certificate of First Aid Training from a UK HSE approved establishment.
- Diver's Log Book with Certificate of Medical Fitness (up to date).
- Bell-man's Certificate where applicable.

All personnel are to produce the original certificates of training / fitness etc. to the QP representative for the on-hire Dive Spread and Personnel Audit.

All Supervisors and Divers must be fully conversant with the diving equipment and tools to be used and be fully familiar with the diving rules, emergency treatment and procedures. They shall have as a minimum, three years 'oil-field' related diving experience. They must be in good health and physically fit. The dive team, including

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the Supervisor, shall have a common language, preferably English, in which they are proficient, both written and spoken.

F. DIVING PLANT AND EQUIPMENT

- The Contractor shall confirm in writing that all plant and equipment provided for the term of the Contract conforms to HSE Regulations and is accompanied by up-to-date certification as required. The certification required shall cover all plant, equipment, running and standing rigging, lifting equipment, pressure vessels, relief valves, gauges and all other items as specified by the Health and Safety Executive Regulations. All plant shall have an individual valid, and up to date Log book.

Reference shall be made to:

- IMCA D 018, Code Of Practice On The Initial And Periodic Examination, Testing And Certification Of Diving Plant And Equipment.
- IMCA D 023, Design For Surface Oriented System (Air)
- IMCA D 024, Design For Saturation Systems (Bell)
- The specification of the plant and equipment must be such that it adequately covers the requirements for which it is supplied. The Contractor shall replace or modify any plant or equipment, which, in the sole opinion of the QP Representative does not conform to the Regulations or perform as required.

Audit of Diving Plant and Equipment shall be carried out by Marine Department prior to contract mobilization.

G. PERSONAL SAFETY EQUIPMENT

It is the Contractor's responsibility to supply every member of the dive team with approved safety equipment. It shall comprise of, as a minimum long or short sleeved cotton overalls, rig boots, safety hat, work gloves, life vests, foul weather gear, and eye/ear protection as required. Worn or defective articles shall be replaced by the Contractor on an as required basis or as stated in the Contract Conditions.

H. GAS DETECTION

Each work-site team shall have as a minimum, Hydrocarbon / H₂S detection equipment capable of accurately measuring to 20% LEL for hydrocarbons, and 10 ppm levels for H₂S with audio and visual alarms incorporated.

I. EMERGENCY PROCEDURES FOR DIVING INCIDENTS

- The diving Contractor's emergency procedures should lay out the actions required of each member of the diving team in the event of a foreseeable emergency occurring during operations.

The following list, which is not exhaustive, identifies the type of possible emergencies to be considered.

- Dealing with an injured or unconscious diver
- Fire in a chamber or around the dive system
- Loss of pressure in chambers or bell
- Hyperbaric evacuation
- Faulty or broken equipment
- Approach of severe weather
- QP shall provide emergency first aid treatment to the Contractor's personnel only at established offshore or onshore facilities.
- Each dive team shall have two (2) HSE recognized Diving Medical Technician as a minimum who shall be fully competent to render general and hyperbaric first aid and

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shall have adequate supplies of in-date medicines for first aid, including the required chamber kits (both internal and external) as required by HSE Regulations and Diving Medical Advisory Committee (DMAC) notices.

- The Contractor shall arrange at its own expense, Hyperbaric Medical backup cover with a HSE approved hyperbaric doctor. The Contractor shall show written agreement for such services with the doctor or medical centre and shall confirm the availability of a 24 hour coverage at all times. This information in conjunction with local contacts and telephone numbers shall form part of the Contractor's Emergency Procedures, and shall be posted in a prominent position at all dive sites.

J. MARINE SPREAD

The diving vessel shall provide a 'safe working platform', be suitably manned, have adequate work space, lighting, deck and radio communications as specified in the Contract document, and have such certification as is required for marine vessels (diving) operating, in national waters, and conform to UK Association of Diving Contractors (A.O.D.C) now known as International Marine Contractors Association (IMCA) .

H. STANDING INSTRUCTIONS

- No diving is to take place in a QP area without a valid Permit to Work. Permit to Work System shall be followed and work permit will be closed at the end of the diving work. .
- All overhead work in the vicinity of the diving operations must stop, except when the QP-Plant Supervisor and Diving Supervisor have ascertained that the overhead will not cause a danger to the diving operation.
- No fishing or discharge of liquid or solids in the vicinity of the operation is permitted.
- No vessel movements are to take place without the express permission of the QP-Plant Supervisor in consultation with the Diving Supervisor.
- No alteration or movement of the diving vessel's position is to take place without the Diving Supervisor's knowledge or permission.
- On completion of Diving Operations, the Diving Supervisors shall inform the QP Plant Supervisor.

5.20 USE OF EXPLOSIVES

Explosives are potentially dangerous and great care is required to ensure that people are not exposed to their potential for personal harm at any time from purchase through to firing the charge. In addition to complying with the rules and regulations of the State of Qatar concerning use of explosives, the following rules shall apply (see also 5.15.1 P-Q above):

- Contractors whose work involves the use of explosives shall make written appointment of Competent Persons, who shall be their specialists in all aspects of the storage and use of explosives. The Competent Persons shall:
 - Possess written authorization from their employing companies which certify that they have been trained in the safe handling and use of all explosive materials and devices supplied or manufactured by their companies;
 - Provide a written work programme and operating procedures for the work involving explosives that have been approved by the appropriate QP Responsible Person (Contract Holder and RPO). These shall be provided before the commencement of the work;
 - Ensure that Explosives Registers at the worksite are kept up to date.

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- Wherever explosives are stored, an Explosives Register (or Explosives Record Book) shall be kept and maintained by the Contractor's Competent Person. The register shall contain:
 - Details of all receipts into store and the shelf-life of the materials;
 - Particulars of all issues from store, including the site where the explosives shall be used;
 - Details of all explosives returned to store;
 - Particulars of all explosives used in each operation;
 - Particulars of misfired shots;
 - Details of disposal.
- The loading, transportation and unloading of explosives shall only take place during daylight hours and in weather conditions judged favourable by all parties involved in the activities. Conditions during which these activities should not take place include the presence of electrical storms and, for offshore operations, strong winds and high seas.
- When explosives are to be transported to an onshore work site, Police escort shall be requested and the Asset Holder shall be notified before the explosives leave base. The Asset Holder shall satisfy himself that conditions at the work site are acceptable for the safe delivery/receipt of the explosives.
- Explosives shall not be left unattended at an onshore work site unless stored in an approved and securely locked container.
- The placing, firing and associated handling of explosives shall be undertaken only by experienced personnel authorized to do such work. A Permit to Work shall be required since firing of explosives is a source of ignition and the Permit shall state the requirements for area isolation by cordon or barriers.
- Smoking, naked lights or other sources of ignition shall not be allowed within the vicinity of explosives whether loose or packed in cases.
- No metal tools shall be used on explosives or their packaging. Wood or rawhide mallets shall be provided.
- Before operations involving the use of explosives begin, barriers shall be erected, warning notices prominently displayed and every precaution taken to ensure the exclusion of unauthorized persons from the immediate area. Ensure all personnel are informed of the meanings of the barriers, signs and warnings and that no unauthorised personnel are allowed to cross barriers. Post barrier guards if necessary. Prior to detonation, make an audible warning either by announcement over a public address system or by whistle.
- Protect any plant or equipment which may be damaged by the use of explosives. If necessary, shelters shall be erected.
- When work reaches the stage of arming the explosives with Electro Explosive Devices (EEDs), radio silence shall be established by isolating or withdrawing from use items which could cause unplanned detonation.
- The Competent Person shall ensure that charges are not fired until he is satisfied that it is safe to fire and that all unauthorised personnel are clear of the vicinity. Shot firing leads shall not be attached to the exploder unit until immediately before firing and shall be detached immediately after firing. There shall be strict adherence to the written procedures for misfires.
- Ensure approved signals which are understood by all personnel on site are made to indicate the all clear.

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5.20.1 RULES FOR STORAGE OF EXPLOSIVES

The following rules shall apply:

- Store only explosives which include shaped charges, detonating cord, boosters, etc. Store the detonators separately. Do not place loose detonators in the store.
- Keep the interior clean and free of grit. If personnel must enter the store, their footwear must be as clean as possible.
- Avoid having loose boxes, loose cartridges or spools in the store.
- Do not over-pack the store; leave sufficient air space round the contents.
- Use only non-spark tools and protect explosives from impact and rough handling.
- Keep stock fresh by regular turnover.
- Maintain adequate ventilation and prevent ingress of rain.
- Carry out necessary repairs promptly, ensuring first that the contents are removed to a safe place and that the store is uncontaminated.
- Smoking is prohibited in and around the store. Personnel must not take into the store matches, cigarette lighters, flammable materials or any item liable to spontaneous ignition.
- Electrical and electronic appliances (including mobile phones) must not be taken into the store.
- If artificial light is needed, use only an approved flashlight.
- Maintain the area around the store clear of flammable materials and debris.
- Ensure warning signs are posted and maintained.
- Maintain an accurate inventory of contents.
- Accompany users and oversee withdrawals.
- Keep the store locked when not in use; ensure only authorized persons have access to keys.
- On the approach of an electrical storm, close the store and evacuate the vicinity.
- Report any fire, accident, break-in, attempted break-in, theft or other incident.
- A safety sign must be posted stating “EXPLOSIVES STORE” and all ignition sources to be kept away. No high intensity electromagnetic radiation source is permitted in the vicinity

5.20.2 DISPOSAL OF EXPLOSIVES

The disposal of explosives by Contractors shall be carried out in accordance with legal requirements and industrial best practice. The following explosives shall be disposed of:

- Surplus to requirements;
- Shelf-life expired or 2 months to expiry date with no future use envisaged;
- New explosives from containers damaged during transportation;
- Deteriorated condition or unfit for use.

5.21 ELECTRICAL SAFETY

Contractors shall carry out all work in QP relating to electricity in a safe manner in accordance with the relevant QP procedures and international standards such as the BS 7671 Requirements for Electrical Installations (IEE Wiring Regulations). The QP procedures shall include but not limited to the following which are available on QP intranet:

- Safety Instructions Electrical – General (ES.2.18.0001)
- Isolation, lock off and Tag Procedure (IP-OPS-021, IP-OPS-037)
- Handling of permitted electrical work (IP-OPS-024, IP-OPS-038)
- Permit to work system (IP-OPS-012, 014, and 015)

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In addition, the following shall also apply:

A. PERSONNEL

- Only Competent Electrical Persons as defined by the document QP Safety Instructions – General (ES.2.18.0001) shall be permitted to perform work on electrical equipment or systems. This includes all work on electrical equipment and installations, and all testing and fault finding.
- Contractors shall ensure that records are maintained for all Competent Electrical Persons employed by the Contractor whether directly or indirectly via subcontract. The Contractor's personnel records shall include the record of electrical training and qualifications including copies of relevant certificates.

B. WORK ON ELECTRICAL EQUIPMENT/INSTALLATIONS

- All work on electrical equipment or systems which is live or is capable of being made live shall be controlled by a documented and approved work procedure which shall describe how switching, testing, fault finding, isolation, and de-isolation is controlled in order to ensure safety.
- All electrical tools and mobile equipment shall be inspected and tested prior to first use and at intervals not exceeding six months thereafter. In addition, all mobile electrical equipment shall be inspected each time the equipment is relocated.
- Work on any portion of an electrical installation shall only be performed once the relevant circuit has been isolated and proved dead. The isolation shall be performed in accordance with the location-specific lock out/tag out safety procedure but as a minimum shall involve switching off the circuit breaker or removing the fuse supplying the circuit and placing a caution tag at the point of isolation.

C. INSPECTION AND TESTING OF ELECTRICAL INSTALLATIONS

- All electrical installations within QP facilities, whether permanent or temporary, including installations on construction sites, shall be inspected and tested by a Competent Electrical Persons prior to being energized.
- The inspection and testing of an electrical installation shall be conducted according to the particular approved procedures and specifications applicable to the installation or project.

D. EARTHING OF ELECTRICAL INSTALLATIONS

The metallic enclosure of all electrical equipment forming part of an electrical installation shall be effectively connected to earth prior to equipment power-up. The resistance to earth shall not exceed 4 ohms.

E. BASIC RULE FOR WORK ON ELECTRICAL EQUIPMENT/INSTALLATIONS

For work to be carried out on any Electrical Equipment (see QP Safety Instructions – General (ES.2.18.0001)), a Permit-to-Work (PTW) must be obtained from the Asset Holder. The basic rule of electrical safety is that no person should carry out work on any part of Electrical Equipment unless such parts are:

- 1) Properly identified as the equipment on which work is intended.
- 2) Made Dead: switched off from the sources of supply.

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- 3) Isolated: action taken to prevent inadvertent reconnection and Caution notices attached.
- 4) Tested: to Prove Dead condition.
- 5) Discharged, Earthed and short-circuited: to provide a back-up protection against Danger arising from unintentional re-energization by an unforeseen condition.
- 6) Provided with barriers, placed where necessary, to prevent DANGER against accidental access to any live parts and Danger Notices posted visibly posted.
- 7) Released for work by the issue of an Electrical Work Certificate (see QP Safety Instructions – General (ES.2.18.0001)).

F. PERSONAL ELECTRICAL APPARATUS

• All personal electrical apparatus which may be exposed to:

- Mechanical damage;
- The effects of weather, natural hazards, temperature or pressure;
- The effects of wet, dirty, dusty or corrosive conditions; or
- Any flammable or explosive substance (including dusts, vapours or gases);

shall not be taken into a hazardous area, unless specifically certified by a recognized certifying authority, as being suitable for use in the zone(s) concerned. All cables and connections shall also comply with the requirements for the zone(s) of use. Only batteries complying with the test certificate shall be used.

- Equipment marking shall be required in order to identify the type of protection, the explosion risk for which the apparatus is suitable and the certifying authority.
- Certification documents and equipment marking shall be checked and approved by the concerned HSE Department.
- Production and Gas processing and treatment plants, drilling rigs, oil/gas wells, hydrocarbon storage terminals, loading berths etc. are examples of hazardous areas.
- Hand torches, hand held radios, mobile telephones, pagers (or bleeper), cameras, calculators, computers, hearing aids etc. are examples of personal electrical apparatus.
- In certain circumstances QP Management may approve the use of specific items of apparatus after considering Safety/Fire Department's advice; quartz wrist watches may fall into this category.
- Personal electrical apparatus shall not be used in a hazardous area unless a gas free certificate (Hot work permit) has been issued for the period of use.

5.22 HOT WORK

This is defined as work involving naked flames, electrical welding, electrical induction pre-heating/stress relieving, or grinding. Hot work is not permitted in any area that contains hydrocarbons above atmospheric pressure. 'Hot work shall not be carried out adjacent to areas where coating works are in progress'. The performance of Hot Work shall require adherence to Production operations Operating Guidelines OPG PD.02.3.18 "Hot Work on Live Stations". In addition to the requirements in the relevant procedures such as the permit-to work system, the following shall apply:

A. SAFE WELDING AREA

A "Safe Welding Area" (SWA) shall be established on all platforms and rigs where substantial welding or flame cutting is anticipated. All welding and flame cutting operations shall be done in the established SWA unless otherwise authorized. Safe welding areas shall typically be located at least 100 feet (30.5m) from well-bores, 50

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feet (15.24m) from vegetated areas, 35 feet (10.67m) from combustibles (stored oil, diesel, etc.) and on a non-combustible surface.

If hot work needs to be performed outside of the SWA, especially on an offshore platform, possibility shall be explored with QP personnel, of shutting-in producing wells, certain process vessels or other operations. In addition, all movable fire hazards in the vicinity shall be removed to a safe distance or guards used to confine the heat, sparks and slag and to protect the immovable fire hazards.

B. HOT WORK PERMIT

A Hot Work Permit shall be obtained prior to carrying out any hot work in a QP facility.

C. INSPECTION AND TESTING

The hot work equipment and work area shall be inspected and tested prior to beginning any hot work operations to ensure safe working conditions. This includes checking for explosive atmospheric conditions in all vessels, piping and confined spaces and documenting the results on the Work Permit. Oxygen and acetylene cylinders shall be stored valve end up and properly secured.

D. HOT WORK PRECAUTIONS

As a minimum, the following precautions shall be taken during Hot Work operations to ensure fire protection:

- Firewatchers with suitable fire extinguishing equipment shall be required whenever hot work operations are performed outside of the Safe Welding Area. The fire watch shall be maintained for a minimum of a half-hour after completion of hot work operations so the danger of fire has passed.
- Oxygen and acetylene cylinders shall be kept at a safe distance from the actual hot work operation so the sparks, hot slag or flames do not reach the cylinder. If such safe distance cannot be maintained, fire resistant shields shall be used.
- A jet of oxygen shall not be permitted to strike an oily surface, greasy cloths or enter a fuel oil or other hydrocarbon storage tank.
- A jet of oxygen shall not be used to blow dirt out of bolt-holes, sockets, nuts, etc. If objects such as these need to be cleaned, compressed air shall be used instead.
- Welding cables with splices within 10 feet of the clamps shall not be used. The welder shall not coil or loop welding electrode cables around parts of the body.
- Wherever there are floor openings or cracks that cannot be closed, precautions shall be taken so that no readily combustible materials below will be exposed to sparks.
- During hot work operations outside the Safe Welding Area, combustible floors shall be kept wet, covered with damp sand, or protected by fire resistant shields.
- Hot Work operations shall not be permitted in the following situations:
 - In areas not authorized by the QP supervisor.
 - In the presence of explosive atmosphere or where such atmospheres may develop.
 - Where ignition can be caused by heat conduction, such as on metal walls or pipes in contact with combustibles on the other side.
 - When wind conditions are such that sparks could be carried to combustible materials.
- Prior to welding or cutting, all hollow spaces or containers shall be vented to permit the escape of air or gases. Purging with inert gas is recommended.

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- No cutting will be allowed on used drums or tanks.

E. VENTILATION DURING HOT WORK

Adequate ventilation shall be provided when hot work is done:

- In a space of less than 10,000 cubic feet (283.2 m³) per welder.
- In a space having a ceiling height of less than 16 feet (4.9m).
- In a confined space or where the hot work space contains partitions, balconies or other structural barriers to the extent that they significantly obstruct cross ventilation.
- Where the nature of the hot work is such that the release of toxic fumes or gases is possible including hot work on stainless steel, zinc, Lead, degreasing or cleaning compounds containing hydrocarbons.

5.23 OFFICE SAFETY

The following rules shall apply:

- Contractors shall be responsible for providing safe and conducive office work environment for their staff. Office furniture and equipment shall be ergonomically sound and of design and construction that is for optimum comfort for the user.
- All Contractor personnel shall be made aware of their responsibilities in knowing the safety requirements for the office in which they work, for knowing what emergency arrangements are in place and the response required, and for maintaining a safe environment at their workstations
- New Contractor employees, transferees and sub-contractors shall receive HSE induction training as soon as practicable after arrival on site and at the least, during the first week. This training shall include but is not limited to the hazards and controls in place, emergency procedures, incident reporting requirements including nearmiss, unsafe act/condition reporting, etc.
- Office Workers such as cleaners and maintenance staff shall be provided with PPE adequate for the jobs they do.
- Safety signs giving information and instruction about escape routes, emergency actions, exits, etc. shall be prominently displayed. Arrangements shall be made to keep signs up to date.
- Floors shall be kept free from obstruction or material likely to cause a person to slip, trip or fall. Floors shall be regularly maintained and worn or loose floor coverings repaired, or replaced with material which is non-slip, fire retardant and anti-static.
- Stairways and corridors shall not be used for the storage of goods and materials.
- Contractor personnel shall use handrails when ascending/descending stairs.

5.24 SAFETY OF VISITORS TO WORKSITES

Contractor shall ensure that all visitors to his worksite in QP plant/facilities comply with the following requirements as a minimum:

A. HSE INDUCTION

All visitors shall undergo a HSE briefing which shall include but is not limited to the hazards and controls in place as well as the emergency procedures of the plant or facility.

B. PERSONAL PROTECTIVE EQUIPMENT

All visitors shall wear personal protective equipment adequate for the hazards present in the worksite, plant, or facility. This shall include but is not limited to the following:

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- Boots or shoes that conform to British Standard 1870 or equivalent. This is to protect the wearer against crushing , slippery surfaces, puncture from nails or other sharp objects. The boots or shoes should not have spikes or studs.
- Safety helmets that conform to ANSI Z89.1/ BS 2826 or equivalent. This is to protect the wearer against impact and penetration damage.
- Hearing protection is mandatory for all visitors intending to visit areas exceeding noise level 85dBA or traveling in helicopters. The hearing protective equipment (ear muffs or bilsom fibre protectors) should conform to British Standard 6344.
Protective clothing shall be of a good fit (trousers and shirt or coverall) without being too loose (national dress - dishdashah) or too restrictive (short trousers or shirts without sleeves).
- Wearing Helmet, Yellow color overall, safety goggles, ear defender and rigger type shoes are mandatory requirements to visit on QP offshore installations. Visitors will be informed accordingly and come to station well prepared.
Access to QP worksites, plants and facilities shall not be permitted for visitors not complying with the above safety regulations.

5.25 SAND BLASTING AND PAINTING

A) Sandblasting

The hazards associated with sandblasting operations include but are not limited to inhalation of dusts (including lead from the paint or silica from the blasting medium); high noise levels; high operating pressure of equipment; etc.

Contractor shall take the following minimum precautions to minimize the possibility of an HSE Incident during sandblasting operations:

- Contractors performing sandblasting operations for QP shall have a medical surveillance program in place to monitor employee's blood level exposure to lead.
- Approved respiratory and hearing protection shall be worn.
- Appropriate eye protection shall be worn.
- The use of silica sand in the blasting medium is discouraged.
- Paint coatings being removed by sandblasting operations shall be considered as containing lead until proven otherwise.
- Check all hoses every day for leaks and signs of wear.
- Ventilation (either mechanical or natural) shall be adequate to keep the work atmosphere less than 10% Lower Explosive Limit (LEL) and the oxygen (O₂) content greater than 19.5%.
- Bleed or depressurize all lines before disconnecting.
- Blasting nozzles shall be equipped with a cut-off device (dead man's switch).
- Secure and hobble all high-pressure air hose connections.
- All air hose connectors (Crow's Feet) shall be pinned or wired to keep them from coming apart.
- Warning signs shall be posted identifying potential hazards.

B) Painting

The hazards during painting operations include, but are not limited to inhalation of toxic vapors or spray mist; fire hazard due to solvents in the paint, etc.

The following are requirements to minimize the possibility of an HSE Incident during painting operations:

- Contractors performing painting operations for QP shall have a medical surveillance program in place to monitor employee's blood level exposure to lead.
- Approved respiratory protection shall be worn.

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- Appropriate eye protection shall be worn.
- Be aware of and eliminate ignition sources in the work area.
- Ventilation (either mechanical or natural) shall be adequate to keep the work atmosphere less than 10% Lower Explosive Limit (LEL) and the oxygen (O₂) content greater than 19.5%.
- Bleed or depressurize all lines before disconnecting.
- Warning signs shall be posted identifying potential hazards.

5.26 PROJECT SAFETY

Contractor shall ensure that all QP project safety related requirements are met from the conceptual stage of the project through to the design, construction, installation and commissioning stages. Facilities shall be designed and installed in accordance with the requirements of the Contract and in compliance with the requirements in the document QP Corporate Fire & Safety Philosophy (QP-PHL-S-001) and other project specific safety documents. Design reviews, Safety reviews and audits shall be in accordance with QP specified standards and procedures. Hazard and Operability studies (HAZOP) shall be performed as per the QP Corporate guidelines provided in the document EG-S-01 'Guide for Hazard and Operability Studies – HAZOP' or its latest edition.

5.27 WORKING ON RADIO TOWERS AND MASTS

All personnel involved or required to work on radio towers and masts shall comply with the QP Procedure IP-OPS-006, "Working on Radio Towers and Masts".

QP Permit to Work System shall be obtained for any work on tower/ masts prior to commencement of work.

QP and Contractors Personnel involved in the work shall be qualified in appropriate levels of PTW system training.

Sponsoring Department/ permit applicant shall ensure compliance/ verification of all required equipment's and tower workers qualification and experience requirements in accordance IP-OPS-006, "Working on Radio Towers and Masts".

Contractor Tower / Mast workers shall be required to have valid fitness to work certificates

Regional / Operational HSE shall verify qualifications/ certifications including training requirements of tower workers and all equipments (approved by QP recognized TPA and endorsed by STI) that shall be used for work.

Work site supervisor shall ensure tower / mast ladder safety fall arresting systems are mechanically sound and fit for purpose prior to commencement of work

Permit controller shall ensure that all isolations that are necessary have been put in place prior to starting of work and that appropriate signs are posted.

A minimum of 3 fully qualified tower workers (one worksite supervisor on the ground and two tower workers to climb/work on tower) be present at worksite all times.

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Work site supervisor shall ensure and maintain two way communications between the ground and tower workers working on tower and mast.

5.28 WORKING ALONE

The nature of certain jobs may require Contractor employees to work by themselves separate from others without close supervision as lone workers (e.g. drivers, cleaners and security staff who work outside normal working hours, some types of construction and maintenance activities, etc.). Contractor shall take all reasonable steps to prevent the practice of working alone by assigning duty to workers in groups of at least two persons to enable each one to look out for the other.

Where lone working becomes absolutely necessary and unavoidable, Contractor shall conduct a risk assessment for the situation and implement measures to reduce the risk to the lone worker. Such measures shall include but are not limited to provision of communication devices and frequent supervisory visits.

Contractor shall not allow any of its workers to drive off alone into the desert. Self-help kits shall be made available to work-teams crossing the desert to enable them rescue themselves from situations such as vehicles being stuck in the sand.

For specific situations such as working in confined space and working on towers and masts, see sections 5.18 and 5.27 above respectively.

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6.0 OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REQUIREMENTS

6.1 GENERAL REQUIREMENTS

A. INTRODUCTION

QP is committed to protecting and promoting workers' health, preventing work-related accidents, and occupational illnesses.

The QP Procedure for managing HSE in contracts requires that a systematic approach to HSE management be applied which shall require Contractors to manage HSE matters in line with QP's HSE Policy. It is mandatory that in any Contract the Health and Industrial Hygiene requirements are fulfilled by both Contractors (and their sub-contractors) and Contract Holders in both on-shore and off-shore operations. In the event of the main Contractor making use of sub-contractors, then the main Contractor remains responsible and liable for all Health/ Hygiene and Safety requirements that QP lays out.

In accordance with the State of Qatar law, Contractor shall comply with the State's labour regulations for health and safety of its workers assigned to QP operations. Contractor shall also ensure that they adopt measures that preserve the health of local communities and the environment.

In cases of Construction sites, the Health requirements stated here shall be applicable from design phase, bidding phase up to construction and post-construction phases.

The Health Manual for Contractor Workers will be kept updated to the changes in law and health regulations in the Petroleum Industry.

B. LEGAL, REGULATORY AND PERFORMANCE REQUIREMENTS

Qatar labour law number 14 is a reference for health standards applicable in operations as well as the requirements for workers' healthcare coverage and disability compensation for hazardous work .

In the Qatar Oil and Gas industry, the Directorate of HSE Regulations (DG) is the ultimate regulator for the whole of the industry in the State. It issues industry standard guidelines that every Contractor has to comply with including ones on Health and Safety.

The National Health Authority (NHA) is then the ultimate regulator for the state of Qatar with regards to healthcare provision, licensing of practitioners and the general quality assurance of service provision.

Every Contractor working for QP is responsible for obtaining and complying with all the requirements set out by the above named bodies and any amendments and updates that may be issued from time to time.

C. HEALTH / HYGIENE ISSUES IN POLICY STATEMENT

The Contractor shall provide QP with a written copy of the HSE Policy which shall contain a clear reference to occupational hygiene, public health and welfare.

The policy statement shall also include commitment with regards to risk mitigation for Contractor employees, sub-contractors and communities that may be exposed to risks to their health.

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6.2 INDUSTRIAL HYGIENE REQUIREMENTS

6.2.1 HEALTH RISK ASSESSMENT

The following will be applicable prior to construction, during construction phase as well as on commissioned projects. Contractor(s) shall:

- Provide a register of anticipated contract-specific hazards and effects identified by a comprehensive Health risk assessment. From the assessment of hazards, they shall identify risk reduction measures to control and recover, including:
 - work methods and work site procedures
 - emergency response plans
 - exposure reduction methods
- Provide a list of contract-specific work procedures and other procedures to address HSE hazards identified in the Risk Assessment.
- Provide a list identifying sub-contractors/vendors/suppliers to be employed in the execution of the Contract.
- Identify potential emergency scenarios that might arise during the Contract and procedures typically used in such scenarios. Examples include:
 - road traffic accident;
 - fire;
 - H2S evacuation;
 - first aid;
 - radiation leak;
 - Medevac;
 - environmental spill (oil, chemicals).

The health risk assessment (HRA) report for areas where chemicals hazardous to health are in place shall contain the following items:

1. nature of hazard to health;
2. degree of exposure;
3. potential health risks to an employees
4. measures and procedures required to control any accidental release of the chemical as a result of leakage, spillage, or process or equipment failure;
5. methods and procedures adopted in the handling and care of the chemicals;
6. measures and procedures required to control the exposure of an employee to the chemicals;
7. the necessity for employee exposure monitoring program;
8. the necessity for health surveillance program; and
9. hazard communication program including training and retraining of employees
 - The Contractor shall review the risk assessments where there has been a significant change in the work procedure, or more than one year has elapsed since the last assessment, or as deemed required by QP industrial hygienist.
 - Ensure hygiene and health topics are included in HSE awareness and training programs i.e. heat and cold stress, MSDS, chemical hygiene, noise protection, indoor air quality, respiratory protection, ventilation, lighting, working with computers, manual handling, vibration, food safety and hygiene, first-aid response and personal hygiene.

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- The assessment report shall include the health hazards identification inventory, risk prioritization summary and control measures which is to be submitted to site QP Industrial Hygienist for review and comments.
- Reports and records of all HRA shall be retained for the period of the project, handed over to QP Industrial Hygienist at the end of the project. And these shall be retained for a minimum of 30 years.

6.2.2 HAZARDOUS CHEMICALS

- The Contractor shall Provide and keep a register of all chemicals that are expected to be used in the project, and are known to be hazardous to health.
- The register shall be submitted to site QP industrial hygienist for review and shall be maintained and updated whenever there is a significant change in the operations. The register shall contain the following information:
 - a) a list of all the chemicals used;
 - b) the current MSDS for each of the chemicals (except for hazardous wastes);
 - c) the average quantity consumed, produced or stored per month or per year for each of the chemicals;
 - d) description of the process and work area where each chemical is used; and
 - e) the name and address of the supplier of each of the chemicals.
- The Contractor shall ensure that the current MSDS for each hazardous chemical or a copy thereof is kept in a safe but accessible place on site and it is carried along during transportation of the substance.
- The Contractor shall ensure that exposure to any of the hazardous chemicals does not exceed the Occupational Exposure Limit specified by the ACGIH for the chemical. The determination of exposure should be considered with a respirator worn at assigned protection factor or without any respiratory protection worn.
- All potentially exposed employees shall be scheduled for monitoring program and health surveillance program.
- The Contractor shall ensure that monitoring of the exposure of employees is repeated at acceptable intervals as determined by QP industrial hygiene standards.
- The Contractor shall be required to implement control measures for the chemical health hazards through the following hierarchy of steps:
 - a) Elimination of the chemical
 - b) Substitution with lesser hazardous chemical
 - c) Total enclosure of the process and handling systems
 - d) Isolation of the affected area to control the release of the chemical
 - e) Modification of the process parameters
 - f) Application of engineering control equipment
 - g) Adoption of safe work systems and practices that eliminate or minimize the risks to health; and
 - h) Provision of approved personal protective equipment suitable for the chemical
- All engineering control equipment for minimizing the release of hazardous chemicals shall be maintained, inspected and tested regularly to prevent malfunctioning and ineffectiveness.
- Any local exhaust ventilation equipment installed (which is used to remove air contaminants at a local source) shall be designed, constructed and tested according

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to QP-approved standard by a QP-approved qualified engineer. Records for the maintenance, inspection and testing shall be produced for inspection when required by the site QP industrial hygienist.

- Ensure all hazardous chemicals are supplied in packaging and fastenings which are strong and solid under normal stress and strain of handling,
- The Contractor shall ensure any packaging or container of hazardous chemical is labeled and the label is not removed, defaced, modified or altered. The labels shall be as per UN Hazards Class Numbers with diamond symbols or equivalent international standard.
- The packaging labels shall be readable with the following information:
 - the name of the chemical in accordance with international recognized nomenclature
 - the name , address and telephone number of the supplier
 - the nature of the risks (risk phrases) with the use of the chemical as defined in Annex III of European Union Directive 67/548/EEC or equivalent international standard
 - the safety precautionary measures (safety phrases) as defined in Annex IV of European Union Directive 67/548/EEC or equivalent international standard
- On site Contractors shall ensure that warning signs, required personal protective equipment and other relevant information are posted at prominent entrances to warn persons entering the area of the hazard. Warning signs must be written in at least English and Arabic.
- The Contractor shall ensure that any person that carries out any work in connection with the hazardous chemicals has access to the MSDS with the necessary information, has been given training/ instruction on the use of the chemical and gets appropriate supervision.

6.2.3 ILLUMINATION REQUIREMENTS

- a. The Contractor shall provide adequate lighting to avoid visual fatigue and prevent glare and reflection into the persons' eyes.
- b. In every part of the area under which the Contractor has control and where persons are working or passing, Contractor shall ensure sufficient and suitable lighting, whether natural or artificial. This measure should also prevent the formation of shadows.
- c. Any general lighting source shall be mounted at a height sufficient to keep it well above the line of normal vision.
- d. Any local lighting source shall be mounted and arranged so as to confine the light to the immediate area to be illuminated.

6.2.4 THERMAL STRESS REQUIREMENTS

- a. Every Contractor shall identify all the potential heat/cold stress conditions that might occur during the health risk assessment. Thermal stress is any set of environmental and workload conditions which place excessive demands on the normal regulation of body temperature.

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- b. Every Contractor shall implement a suitable heat stress control program such as the following measures, as far as is practicable:
- i. Workplace heat/coldness minimization;
 - ii. Engineering controls to reduce the workplace heat/coldness;
 - iii. Administrative controls to identify, reduce and control employees who are at risk from the heat/cold exposure with suitable work practices;
 - iv. The employees must wear suitable PPE;

Train workers to recognize signs and symptoms of heat and cold stress disorders to prevent heat/cold stress.

6.2.5 ERGONOMICS

The Contractor shall provide relevant information regarding the following ergonomic factors- in relation to the project (these should be reflected in the HRA):

A. VDU AND USE OF COMPUTER SYSTEMS: Contractor shall provide information regarding the safe use of Visual Display Units (VDU) and computer systems

B. MANUAL HANDLING: assess all work associated with the use of hand tools, lifting and the use of lifting equipment. No employee employed to lift, shall carry or move any load too heavy for him or work in awkward postures so as not to cause bodily injury.

C. VIBRATION: assess all operations with equipment that may expose workers to vibration. In all “hand-transmitted vibration-induced” and “whole body vibration-induced” activities, Contractor shall ensure that no adverse health effects are caused such as numbness, reduced sensory perceptions, reduced tactile discrimination and/or reduced manipulative dexterity.

D. VENTILATION AND INDOOR AIR QUALITY: Where any Contractor’s scope of work or service relates to indoor facilities such as office, rooms, workshop and provision of worker’s camps, etc., the Contractor shall conduct indoor air quality assessments and provide adequate ventilation.

The Contractor shall ensure that all mechanical ventilation, air-conditioning or HVAC are regularly checked, kept clean and well maintained to prevent growth of micro-organisms and to maintain acceptable in-door thermal conditions.

6.2.6 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Contractor shall provide PPE for all its personnel commensurate with the HSE hazards present in the job and location, as well as in conformance with the requirements stated in Section 5.3 of these regulations

6.2.7 WELFARE AMENITIES AND OTHER HYGIENE / PUBLIC HEALTH REQUIREMENTS

It is the responsibility of each Contractor to ensure that general public health on the Contractor’s camps and workplace is catered for. Contractor shall ensure good housekeeping on each worksite of the project. Contractor shall also establish links with local health authorities and take steps to ensure that the following programs are complied with:

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A. MESS HALLS AND DINING AREA

- The Contractor shall ensure all foods are stored and consumed only at specific designated areas i.e. rest and catering facilities.
- The Contractor shall ensure that the facility for food preparation is adequate, the catering arrangements for all the employees are in compliance with the following requirements:
 - All the food handlers have valid health certificates issued by QP-approved medical service.
 - All the food handlers are properly trained to conduct good personal hygiene practices when handling the food.
 - The catering facilities are designed, constructed and maintained for the highest standards of hygiene for food safety.
 - There is an adequate food safety program including food sanitation arrangements.
 - The Contractor shall provide adequate free space of at least 3 m² for the work area to allow free movement for employees. It should not be less than 3.0 meter in height measured from the floor to the lowest point of the ceiling or any cross beam thereof.
 - Provide adequate tables and chairs that may not cause undue strain.
- The Contractor shall make reasonable arrangement for employees' living area to have suitable footrest with regular maintenance in order to reduce fatigue.

B. CHANGE ROOMS

The Contractor shall provide (so far as is reasonably practicable) suitable and sufficient change-rooms for employees to ensure that employees do not get unnecessary exposure to hazardous substances, e.g. working with lead, asbestos and mineral dust, and etc.

C. ABLUTIONS

- The Contractor shall provide Washing facilities, including showers if the work is particularly dirty or where employees are exposed to hazardous chemicals.
- The Contractor shall provide separate sanitary conveniences for employees of different genders both at the living camps and on work sites which shall conform to the specifications in Appendix 4A of this document.
- Conveniences shall have good extraction, ventilation and drainage system.
- The Contractor shall provide hand-wash basins large enough for people to wash their face, hands and forearms
- Suitable disinfectant/ soap shall also be provided.

D. LIVING QUARTERS/ CAMP

- The Contractor shall ensure the living quarters/camps are sited and constructed in compliance with the requirements in Section 4.22 of these regulations.
- The Contractor shall ensure good indoor air quality and ventilation as discussed in previous section in all living quarters of Contractor employees.
- The Contractor shall provide adequate washing facilities, sanitary conveniences and drainage system for workers.
- QP and other authorized bodies may conduct random inspections to ensure that Contractor upholds all standards as specified in this document

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E. POTABLE WATER AND DRINKING WATER SAFETY

- The Contractor shall ensure that an adequate supply and maintenance of a clean, safe and wholesome drinking water is available for his employees.
- The Contractor shall liaise with the relevant QP health/hygiene personnel or public health officers to ensure necessary precautions and random water tests are taken to safeguard the water and health of the employees.

F. REST FACILITIES

- The Contractor shall provide rest facilities at worksites for Contractor employees. The facilities should provide protection from adverse weather, be kept clean, ventilated with cooling during hot months and well lit.

G. RECREATIONAL FACILITIES

The good mental health social stimulation and total well-being or social welfare of employees shall form a part of the Contractor's responsibility. Contractors that hold long-term Contracts shall ensure that the camp sites are equipped for recreational facilities or arrange "shared-facilities" with adjacent camps.

H. GOOD HOUSEKEEPING

- Every worksite shall be kept in a clean state and free from offensive effluvia arising from any drain, sanitary convenience or other source.
- Contractor's personnel shall not partake of food or drink in the work area where any poisonous or injurious substances are used.

6.3 HEALTH REQUIREMENTS

6.3.1 HEALTH IMPACT ASSESSMENTS (HIA)

The Contractor shall be required to provide details of known or potential health impacts that his activities could have on existing operations and on health beyond the project site. Depending on length and scope of project, an HIA will be required.

An HIA employs a combination of procedures, methods and tools by which programme or project may be judged as to its potential effects on the health of a population, and the distribution off those effects within the population. This should be detailed in a comprehensive proactive, integrated systems approach that recognizes that a variety of activities that are beyond health and work impact on health.

Each Contractor shall develop an "action plan" following the HIA-to ensure implementation of corrective actions.

6.3.2 HEALTHCARE PROVISION

Contractor have a duty of care towards their entire workforce. It is therefore the duty of each Contractor to arrange healthcare provision prior to commissioning of any project. This can be in the form of:

- "contracting service with QP Medical Services" or
- self-provision in an approved medical facility or (has to be licensed)
- contracting healthcare services with an approved healthcare provider elsewhere in Qatar.

The following are basic requirements for all Contractor companies with respect to Healthcare and insurance cover:

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A. MEDICAL CARE PROVISION

Contractor shall provide QP with evidence of health coverage for its personnel (especially employees who will spend more than 30 days with the Contractor during the performance of the Contract)

B. LICENSING OF MEDICAL AID CENTRE

In the event that Contractor opts for “self-provision” of healthcare service, the Contractor has to have the facility pre-audited and licensed according to QP-STD-MS-001 (Standard for establishment of Medical Aid Centre in QP operations).

B. COMPLEMENTARY INSURANCE FOR HAZARDOUS WORK

Contractor shall provide proof that it has established Complementary Insurance for Hazardous Work for all its field workers. This may include companies not considered in the list of high risk activities.

C. LIFE INSURANCE

QP shall require Contractor to produce evidence of Life insurance coverage, prior to starting field operations

D. APPOINTMENT OF HEALTHCARE PROVIDERS

Each Contractor shall appoint a competent health advisor to handle all healthcare needs of Contractor's personnel when applicable.

Competency of the Health advisor will depend on the level of Healthcare Provision and Medical cover set up by Contractor (either Nurse-led medical aid centre or full Primary Health Care clinic).

Health Adviser shall demonstrate competence in the following areas:

- Be able to facilitate and develop Contract HSE Plan
- Ability to communicate effectively in written and spoken English;
- Knowledge of health requirements, rules and regulations, and ability to monitor compliance
- Be fully conversant with techniques used in the management of hazards and advising on suitable measures which can be used for preventing and ultimately recovering from accident situations
- Ability to conduct and report HSE audits;
- Ability to conduct incident investigations and identify underlying causes;
- Be fully conversant with QP Contractor HSE Management documents and emergency procedures.

Licensing of all health personnel is done by the National Health Authority (NHA) Licensing department. The Contractor shall ensure that NHA Licensing procedure is followed within 3 months of employing the health personnel.

In the event that a Contractor has set up his “own” medical centre- the centre shall comply with the minimum requirements set out by QP and the NHA. The licensing procedure of such a centre is detailed in the procedure stated below:

Refer to QP-MS-STD-001 for all the detail on the setting up, management and licensing of a Medical Aid Centre on QP locations.

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6.3.3 FITNESS-TO-WORK EXAMINATIONS

A. GENERAL

According to the Safety Regulations of the International Association of Oil and Gas Producers (OGP), any person applying for a job in the Petroleum Industry, shall undergo a medical examination and be found fit for such employment. QP requires all Contractors engaged on QP business to comply with this requirement with respect to all their employees.

Every Contractor shall appoint or subscribe for occupational health service from a local organization to ensure that its employees have access to occupational health service.

B. VALIDITY OF FITNESS-TO-WORK CERTIFICATES

The Contractor shall be required to submit, to the QP Contract Holder, a list of workers declared fit to work, and their “valid” medical fitness certificates will be reviewed to ensure that they meet QP’s standards.

Fitness-to-work is determined by job requirements combined with physical abilities of the individual. Therefore if any fitness-to-work medical examination is performed without taking into account these considerations, the fitness test will be considered incomplete and invalid.

The Contract Holder shall ensure that validation of medical fitness is done via QP OH Practitioner or Medical advisor.

If no valid medical certificate exists, it is the Contractors’ responsibility to schedule appointments to have its employees -for medical assessments at own cost.

Refer to Fitness-to-Work Procedure QP-STD-S-063 for the detail on type of examination for each “health risk” group.

6.3.4 MEDICAL EMERGENCY PLANNING

- Emergency planning must be specific to the project. Contractors shall submit documentation at the inception of their involvement, indicating that they recognize local conditions and requirements.
- Emergency Response/MEDEVAC: The Contractor’s HSE Adviser has the responsibility of coordinating medical emergency response on behalf of the Contractor to ensure seamless alignment with surrounding industry and local emergency services. Each Contractor shall have a written procedure on Medical Evacuation (MEDEVAC) from its operational location to the nearest health service post.
- The emergency response plan shall be displayed and drilled often depending on level of risk.
- It is the responsibility of the Contractor HSE Adviser/ representative to establish links with the nearest health support services and have a clear chain of command for risk mitigation on-site.
- The Medical Emergency Response procedure should at least contain the following:
 - i. Contractor HSE Adviser: name and phone numbers
 - ii. The list of workers that have received First aid training /CPR.
 - iii. Flow Chart of the process for medical evacuation.
 - iv. The name and phone number of the ambulance service
 - v. All names of the workers on site. With Next of kin’s contact details,

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- vi. Health insurance company's policy number, name, contact person and telephone numbers

6.3.5 PREVENTIVE MEASURES AND VACCINATIONS

- All preventive measures will be part of work conditions offered by the employer, and must be available for all its workers. It is therefore the responsibility of every Contractor to ensure access to, and provision of all vaccination recommended within the State of Qatar
- Every Contractor shall make own provision for Pandemic Preparedness. Keep up to date with any biological hazards that might impact his Contractor workforce, be familiar with the local response plans and devise "own response" to ensure disease containment and prevention spread.
- Contractors shall be expected to do "Business Continuity Planning" in the face of a pandemic. Business continuity is the strategic and tactical capability of an organization to plan for and respond to incidents and business disruptions in order to continue business operations at an acceptable predefined level. Business Continuity Management (BCM) involves managing the recovery or continuation of business activities in the event of a business disruption, and management of the overall program through training, exercises, and reviews to ensure the business continuity plan(s) stays current and up-to-date. In this context, business continuity planning should focus on health related events like a disease pandemic that might disrupt people, processes and hence the whole business
- QP may at its discretion, engage and involve Contractors and service providers in major preparedness drills, communication and training. It is the responsibility of the Contractor to fully participate in the previous events, as required.
- QP will from time to time review Contractors' business continuity plans.

6.3.6 WORK ACCIDENTS REPORT

- In accordance with Qatar Law as well as QP Procedure for Incident Management (QPR-STM-001)-each Contractor will be required to report and keep records of all work incidents, accidents and the diagnosis of occupational illness.
- It is the duty of the Contractor to report all work-related incidents/accidents to the relevant QP personnel using the approved procedure and documents.
- First aid cases shall also be reported to QP monthly
- All workers involved in work-related incidents/accidents, shall be seen by the Contractor's Health services personnel or the registered and approved third party healthcare provider (depending on prior arrangement by Contractor).
- All work-related injuries that require outpatient medical treatment and work's accidents that result in loss of shift shall be communicated to QP's medical supervisor.
- In case the worker is referred to a clinic affiliated to QP, the Contractor shall send patient with appropriate documentation requesting medical attention.
- In case of a work's accident that results in loss of shift/ long sick leave (any period beyond 14 days), Contractor shall be required to provide QP with:
 - i) Periodic medical progress reports,
 - ii) A discharge summary upon completion of treatment from external provider,
 - iii) A return-to work certificate,
 - iv) A re-admission medical report (where applicable),
 - v) **A final report stating number of workdays lost due to the injury.** Even where an employee does not return to operations, a final report shall be submitted to QP.

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- Contractor is required to provide medical records/ reports for audits.

6.3.7 REPORTING AND RECORD KEEPING SYSTEM

A. MEDICAL RECORDS

The Contractor with an independent Medical Aid Centre (with no dependence on QP's medical facility) shall be required to keep clinical records as stipulated in the license issued by the National Health Authority and in compliance with the Medical Aid Centre Standard (new DG standard)

A Contractor with a Service Level Agreement for healthcare provision with QP Health centres shall ensure that full details of their Contract's workers are provided to QP administration for efficient administration of medical records.

Each patient record shall reflect the following:

- a. Patient's full details
- b. Contractor's name
- c. Contractor's Health Adviser details
- d. Medical Insurance or Contractor Account

B. FITNESS CERTIFICATES

Copies of fitness certificates shall be kept in each Contract worker's file for reference in incident investigations and audits.

The Contractor shall maintain copies of fitness to work certificates to enable the health advisor to schedule fitness assessments periodically as per requirement/ per risk assessment.

C. INJURY ON DUTY RECORDS

Copies of all Injury on duty (IOD)'s shall be kept and updated accordingly.

D. OH / IH INCIDENT INVESTIGATION REPORTS

It is the responsibility of each Contractor to report and investigate all Occupational Health and Hygiene incidents involving his employees. The mechanism should be in line with QP Corporate Incident Management Procedure QPR-STM-001.

The Contractor shall conduct incident investigations in case of over-exposure to health hazards, of employees and keep record of the findings.

All investigation records shall be made available for periodic audits by QP.

E. NON ACCIDENTAL DEATHS

Contractors will be expected to initiate, participate and/ or contribute to any investigation in the event of death within the worker's camps.

6.3.8 ALCOHOL, DRUGS AND CONTROLLED SUBSTANCES

Contractor and all its personnel shall comply with all State of Qatar laws relating to Alcohol, drugs, and controlled substances.

QP allows alcohol testing for cause in incident investigations. However, routine random testing is not allowed.

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7.0 ENVIRONMENTAL PROTECTION REQUIREMENTS

For each Contract, the Contractor shall be required to implement an environmental protection program as part of implementation of the Contract HSE Plan. The program shall include but not limited to the definition of environmental objectives, target setting, implementation of measures to achieve the objectives and targets, performance monitoring and auditing to ensure continuous improvement. The issues in the following sections shall form part of the program.

The Contractor shall also conform to all the environmental regulations covered in the State of Qatar Decree Law No. 30, 2002 and all it's related Executive By-Laws and annexes. The PDF copies are available in the QP Intranet with the following URL:

Environment Protection Law of 2002:

http://qpnet.qgpc.net/qpnet.nsf/web/ev_envlegalen

By-Law No.2 Environmental Protection Law and its annexes:

http://qpnet.qgpc.net/qpnet.nsf/web/ev_envlegalen

7.1 SITE SELECTION, ABANDONMENT AND RESTORATION OF FACILITIES

7.1.1 Contractors' consideration for site selection.

Site selection for geophysical operations, well locations, fixed and mobile campsites, roads, pipeline rights-of-way, plots for facilities and civil construction shall be carried out in accordance with the Environmental Impact Assessment (EIA) written for the specific project. The EIA should bear Ministry of Environment (MoE) approval.

For facilities that do not require an EIA, the selection of the site of a facility shall address the issue of (1) minimal environmental damage, and (2) least cost of abandonment and restoration at the end of the useful life of the facility.

7.1.2 Contractors' consideration for site preparation

7.1.2.1 General

Earthmoving operations shall be conducted to provide sufficient and safe access for personnel and equipment while minimising environmental effects. In areas where earthmoving operations have a high environmental impact, they shall be closely supervised to ensure adherence to procedures and regulations, and minimisation of environmental damage. The location design shall be optimised to minimise the soil to be dug within the field boundaries. The import of soil from outside the field shall be planned so as to minimise disturbance. In cases where topsoil has been removed to level the area, these must be set aside in an adjacent area and re-used for levelling the original area during re-instatement. This soil pile should be contoured to reduce erosion. Where technically acceptable, any soil removed to make the water storage and cuttings pits shall be used to construct the site, thus reducing the volume of soil to be brought in from borrow-pits. Trees with a trunk diameter of more than 10 centimetres shall not be felled or removed. As much as possible the layout shall accommodate the existing location of trees. If sites need to be levelled, the existing relief shall be conserved.

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7.1.2.2 Borrow Pits

The selection of the location of borrow pits shall lie with the QP Asset Manager provided that the location is within the boundary of the concession area. Borrow pits, as defined in this specification, shall not be excavated deeper than 2 metres. Borrow pits shall not be made closer than 100 m from the centre line of a QP's road, 200m from the centreline of a government road or 100 m from a facility. Borrow pits shall not be excavated within a 500-m radius of wellheads within a producing field or within a 250-m radius of wellheads on the perimeter of a field. Borrow pits shall not be excavated within Wadis where there is a risk of altering existing water courses, in areas used for grazing livestock or in other areas which would cause a nuisance to local inhabitants. Borrow pits shall not be excavated in vegetated areas or result in any removal of trees or other natural vegetation.

7.1.2.3 Roads

Where a major disturbance of the environment is needed to meet the road safety requirements in accordance with the design standards, safety considerations shall take priority over environmental impact. The old industry practice of oiling roads using waste oil or crude oil to prevent dust formation shall not be allowed. This act equates to polluting the soil. The specification for soil/sand contamination is 10,000 mg/kg of TPH (Ref.: Waste Management Specification, SPC-ENV-001). However any bituminous material or asphalt shall be allowed.

7.1.2.4 Pipeline Right-Of-Way

The permanent right of way for pipelines shall be a strip of land 20-m wide in total, 10 m on each side of the centreline of the pipeline. An additional 15 m on both sides of the right of way is designated as public open space to safeguard the pipeline after construction. Wadi crossings, if encountered shall be carried out so as to cause as little change to the existing relief or the flow of shallow aquifers as possible.

7.1.3 Contractors instructions for Site Abandonment and Restoration.

7.1.3.1 Onshore Operations

A. Earthmoving operation and garbage/litter removal

After the removal of surface facilities, restoration of landscape, by intervention, to an adequate standard will primarily involve earthmoving operations. All garbage and litter shall be removed before replacing any surface ground soil. Restored landscape shall be visually similar to adjacent landscape and shall not present a hazard to overland transport.

B Suitability of soil for use in reclamation and restoration

The land use of the facility after decommissioning may be specified by the Ministry of Environment especially if the facility has been contaminated or the end land use shall require reclamation, restoration and or vegetation of the site. In such cases, the soil specification for use in reclamation and/or restoration is described herewith. However in Drilling operations the analysis of the soil for restoration shall only be undertaken if there is evidence that the site has been contaminated as described in Table 2 below in this document. The volume of topsoil to be used in reclamation and/or restoration should be estimated so that the availability of topsoil re-spreading on site over the disturbed or contaminated areas can be calculated. Some of the key physical and

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chemical properties or specifications of the soil to be used in reclamation and/or restoration that should be assessed and their desirable specified ranges are given in Table 7.1 below. These are the recommended ranges from the American Petroleum Institute or API.

Table 7.1: Key physical and chemical properties or specifications of the soil to be used in reclamation and/or restoration

	Soil Parameters	Significance	Desirable Range
1	Texture	Related to soil moisture and nutrient holding capacity; susceptibility to erosion.	20 to 80% sand; <50%clay; <50% coarse fragment content.
2	Reaction (pH)	Influences availability of nutrients to plants, solubility of metals.	pH 6 to 9
3	Salinity	Related to salt toxicity to plants; plant moisture availability; soil structure.	Electrical conductivity (EC) <4 dS/m
4	Organic matter	Related to soil moisture and nutrient holding capacity; soil structure	1 to 10%
5	Nutrients	Macronutrient (N, P and K) and macronutrient deficiencies may limit plant growth.	Dependent upon plant species expected by MoE to grow on the site.
6	Total Petroleum Hydrocarbons (TPH)	Related to plant growth and soil moisture	<1%

Notes:

a) These are general ranges, the QP Asset Owner or operator should determine their applicability to a particular site and conditions imposed by the MoE.

b) If EC>4 dS/m is caused by ions other than sodium, soil structure may not be negatively affected.

C. Waste Materials

Waste materials generated during site abandonment and restoration shall be disposed of in accordance with QP's Specification for Waste Management (SPC-ENV-001).

Hydrocarbon contaminated soil shall be removed from the site. Hydrocarbon contaminated soil in flare, vent, water storage and cuttings pits shall be removed if hydrocarbon contents are greater than 1% weight. (ref: QP's Specification for Waste Management, SPCENV-001).

Flare, vent, water storage and cuttings pits (< 1% Hydrocarbon) shall then be backfilled with a minimum of 0.6 meter depth sand cover and contoured to original ground level.

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D. Steelwork and Concrete

All above ground steelwork and concrete shall be entirely removed from the location during decommissioning. All aboveground foundations shall be excavated and backfilled with compacted granular fill, or other material according to the type of ground.

E. Landfill sites

All decommissioned landfill sites shall be covered with at least 0.6 metre depth of clean sand as top cover, and the surface of the site contoured, so that it fits in with the surrounding landscape.

F. Borrow pits

After use, the slopes of borrow pits shall be contoured to a maximum of 30 degrees from the horizontal and all surface irregularities returned to the borrow pit and smoothed off. The intent is that an abandoned borrow pit shall appear no more than a naturally occurring depression in the desert, safe for vehicles and animals.

G. Camps

Buildings and associated facilities, including oil storage and fencing, shall be removed during decommissioning. Campsites shall be restored by smoothing the entire site within three months after vacation of the campsite. Reserve pits and sewage pits shall be backfilled and earthwork constructions (e.g. sound deflecting walls) levelled. Compacted areas, such as the access road and the camp pad do not need to be broken up or harrowed. Garbage and litter must be removed and disposed of as specified in the QP Specifications for Waste Management (SPC-ENV-001).

A document shall be initiated by the Contract Holder, signed by both the Contract Holder and the occupant of the subject camp stating that all of the specifications indicated above have been complied with. In the event of non-compliance, the Contract Holder must initiate a note to the QP Finance Directorate withholding any end-of-contract financial claims of the camp occupant.

7.1.4 CONTRACTORS' SPECIFICATIONS FOR REMEDIATION

7.1.4.1 Remediation of Onshore Facilities

Remediation is the management of contaminated soil, surface water and groundwater to prevent, minimise or mitigate risks to public health and safety or the environment. Contaminants typically associated with oil and gas exploration and production activities are hydrocarbons and salts that are associated with crude oil and produced water. Other secondary contaminants may include chromium and barium from drilling mud, other hazardous heavy metals, mercury at metering stations, lead in pipe dope, PCBs from electrical transformers and capacitors and naturally occurring radioactive materials (NORMs)

Onshore facilities that may be contaminated are as follows:

1. Abandoned / current wells and Drilling reserve pits
2. Power stations
3. Electrical substations
4. Oil gathering stations
5. Oil production stations
6. Pipeline and flowline sections with substantial oil spills

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7. Crude oil tanks with suspected leaking bottoms
8. Chemical storage tanks with suspected leaking bottoms
9. Sewage disposal sites
10. Leaking Underground Storage Tanks Land on onshore facilities is considered contaminated if the parameters shown on Tables 7.2 and 7.3 are not satisfied:

Table 7.2: Limits for land on onshore facilities to be considered as contaminated

	Parameter	Range	Reference Standard
1	pH	6 to 9	API
2	Salinity	Electrical conductivity (EC) >4 dS/m	API
3	Total Petroleum Hydrocarbon (TPH)	>1% or > 10,000 ppm	API
4	Radioactivity	Radioactivity of any 0.1 m3 of soil does not exceed 40 kilobecquerels (1.08 microcuries)	Operational Procedure ENG/009
5	PCBs	> 50 ppm	Shell

The availability of metals in soil is dependent upon pH, reduction/oxidation potential, and total metal concentration. The controlling variable is pH. In general, solubility of metals is directly related to pH. If pH conditions change in the soil, significant fractions of a heavy metal may be released in the environment. If pH is < 6 and the metal concentrations exceed the amounts indicated in Table 7.3, then the soil is considered contaminated.

Table 7.3 - API (1997) metal guidance: maximum soil concentrations with soil pH <6

	Metal	Maximum soil concentration (mg/Kg)
1	Arsenic	41
2	Barium	180 000
3	Boron	2 mg/l*
4	Cadmium	26
5	Chromium	1 500
6	Copper	750
7	Lead	300
8	Mercury	17
9	Molybdenum	see note 1
10	Nickel	210
11	Selenium	see note 2
12	Zinc	1 400

* Guidance for boron is based on the soluble concentrations with units of mg/l rather than the total concentration (mg/kg)

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Notes:

1. Molybdenum: On February 25, 1994, EPA rescinded the risk-based maximum soil concentration of Mo of 9 mg/kg due to technical errors and established a nonrisk-based interim ceiling limit of 37 mg/kg. Under certain conditions this interim level may not be protective of grazing livestock. These conditions are alkaline soils under arid and semi-arid conditions with deficient levels of copper in the soil.

2. Selenium: The EPA using the risk-based multi-pathway analysis recommended the limiting pathway concentration of 100 mg/kg. However, the potential for plant uptake of Se may be high in alkaline soils under arid and semi-arid conditions. Plants that accumulate Se in these soils may pose a threat to grazing animals. Therefore, if elevated levels of Se are found in the waste, the operator should consider site conditions that control its availability. If the four limiting parameters indicated above, namely:

- salinity criteria
- TPH
- pH and
- heavy metals;

have all been satisfied, then the soil/sand/site is considered not contaminated.

However, if any of these limiting parameters are not satisfied, then soil/sand/site shall undergo treatment as described herewith.

7.1.4.2 Specifications for Remediation Technologies for Soil and Groundwater Contaminated Sites

Remediation shall be undertaken using either In-Situ or Ex-Situ technologies.

A. In-situ remediation technologies

In-Situ remediation technologies involve the treatment or management of soils and groundwater in place. An advantage of such technologies is that material excavation and handling problems are reduced or eliminated. Furthermore In-Situ technologies can be long-term and require particular efforts for verification because of the variability that is typically evident in subsurface conditions. However, In-Situ may be the only practical option for contaminated sites with access or logistical constraints.

B. Ex-situ treatment technologies

Ex-Situ treatment technologies involve the removal of contaminants from their original location so that they can be treated and/or disposed of.

The following Table 7.4 summarises the specifications for the acceptable remediation technologies. However the applicability, cost and availability of specialised third party Contractor shall be considered on a case-to-case basis in applying these other treatment technologies.

Table 7.4: Specifications for the acceptable treatment technologies for potential contaminated sites

	Potential Contaminant	Contaminated site (s)	Source of contamination	Remediation technologies	Available in Qatar?
1	Hydrocarbons Soils	sludges, sediments	Leaks and spills from wellheads, flowlines pipelines and tanks; oil containing pits; flare pits	Ex-Situ Bioremediation by landfarming	Proposed MIC Hazardous Waste Mgt. Centre
2	Hydrocarbons	groundwater	Leaks and spills from wellheads, flowlines pipelines and tanks; oil-containing pits; flare pits	In-Situ pumping with oil/water separator;	Third party specialist Contractors
3	PCBs	Soils, sludges, sediments	Electrical transformers or capacitors	Ex-Situ Disposal at specialist treatment facility	Third party specialist Contractors
4	PCBs	groundwater	Electrical transformers or capacitors	Ex-Situ Pumping plus disposal at specialised treatment facility	Third party specialist Contractors
5	Naturally Occurring Radioactive Materials (NORMs)		Oil-process equipment such as tubing, heater treaters, separators and salt water tanks; gas processing equipment such as inlet filters and reflux pumps; sludge from crude tanks;	Ex-Situ Injection in MoE-approved NORM injection well; disposal at specialised solidification treatment facility	Proposed MIC Hazardous Waste Mgt. Centre

7.1.5 CONTRACTORS SPECIFICATIONS FOR LANDSCAPE RESTORATION

Landscape restoration methods may be by natural process or by human intervention. The natural processes in the Qatari desert that promote restoration are primarily the wind, diurnal temperature variations, occasional rainfall and water flow. Care shall be taken when landscaping not to cause damage to adjacent areas. Intervention requirements for landscaping different environmental features are given below. In almost all cases, vegetation should be allowed to return by natural colonisation. If

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serious erosion problems are envisaged, the landscaping operation may include seeding or planting of stabilising vegetation.

7.1.5.1 Mobile Sand Dune

Windblown sand will gradually cover disturbed areas. Therefore, major earthmoving operations should not normally be used for mobile sand dunes.

7.1.5.2 Fixed or slow moving Sand Dune

Excavated or disturbed areas may remain visible for many years on fixed dunes. Earthmoving shall aim to restore a natural profile.

7.1.5.3 Flat Non-Mobile Desert

Excavated or disturbed areas may remain visible for many years on flat desert. Earthmoving shall aim to restore a flat profile.

7.1.5.4 Bedrock Plain

Except for the removal of surface materials and backfilling of excavations, major intervention should not normally be used on bedrock plains. Excavation scars should be allowed to weather naturally.

7.1.5.5 Boulder Strewn Area

Boulder strewn areas should be profiled by earthmoving to match the surrounding area.

7.1.5.6 Wadi

There are very few Wadis or dry riverbeds in Qatar due to its predominantly flat topography. However during the annual rain, rainwater will seek its level and normally follow the natural contour creating a Wadi. Wadi-crossings that have been used as transport or pipeline routes shall be profiled by earthmoving to restore the natural profile. The natural landscape of the Wadi will usually be restored following significant rainfall causing Wadi flow.

7.1.5.7 Sabkha

Operations, which cause scarring of the surface crust, should not be restored by earthmoving. The alternating flooding and drying of Sabkha will gradually restore the natural profile to the surface crust.

7.1.6 CONTRACTOR ENVIRONMENTAL PERFORMANCE MONITORING

Following restoration, all sites shall be inspected and surveyed to confirm and register the co-ordinates of the restored area for topographical mapping purposes. A program shall be developed, implemented and maintained by the QP Topography section to prepare required reports (see next section).

7.2 WASTE MANAGEMENT

The QP HSE policy (9th April 2007) states that Contractors working on behalf of the corporation shall apply QP's HSE standards. Following this policy, all QP Contractors are hereby instructed to apply all waste management specifications and guidelines written in the two documents stated below:

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7.2.1 QP Specifications for Waste Management (Doc No. SPC-ENV-001).

This document can be found in the QP Intranet with the following URL:

[http://app1.qgpc.net/Intranet/OS/OSD_IPs.nsf/\(webview\)?OpenView&Start=1&Count=1000&Expand=3.7#3.7](http://app1.qgpc.net/Intranet/OS/OSD_IPs.nsf/(webview)?OpenView&Start=1&Count=1000&Expand=3.7#3.7)

The main Contractors' responsibilities in waste management are as follows:

A. Contractors shall ensure that all wastes produced as a result of work with QP are all identified as industrial, hazardous or domestic and shall be handled and disposed of in accordance with the QP Specifications for Waste Management and all related Qatar regulatory standards related to waste management.

B. Contractors shall coordinate all waste management activities with the Contract Holder.

7.2.2 QP Guidelines for Waste Management for Offshore Operations and Halul (Doc No. QP-ENV-001)

This document can be found in the QP Intranet with the following URL:

[http://app1.qgpc.net/Intranet/OS/OSD_IPs.nsf/\(webview\)?OpenView&Start=1&Count=1000&Expand=3.7#3.7](http://app1.qgpc.net/Intranet/OS/OSD_IPs.nsf/(webview)?OpenView&Start=1&Count=1000&Expand=3.7#3.7)

Note: The above waste management guideline is currently under revision and shall be replaced soon by QP Guidelines for Waste Management for QP Operations (Doc No. QP-ENV-002). The new updated document shall be a QP Technical Standard.

7.2.3 HAZARDOUS WASTE

The following minimum requirements shall be implemented by Contractor:

- No hazardous waste shall be mixed with any other category of waste or discharged to a common sewerage or other drainage system.
- Contractor shall contact QP HSE Representative and Contract Holder to raise a waste management request for each category of hazardous waste for approval and recommendation for storage at the designated location or transportation/ disposal advice.
- Hazardous wastes must be appropriately stored in steel/plastic drums and labelled and packed. Labels shall include the following information:
 - Name of the waste (e.g. Mol Sieve and oil contaminated soil etc.)
 - Date waste was generated
 - Name of the plant (area)
- Following approval of the request waste manifest will be received by the requester for transferring the waste to temporary waste storage yard or to QP's Hazardous Waste Treatment Centre, in Mesaieed
- Contractor shall comply with the conditions stated in the waste manifest and transfer the waste safely to a designated location or Hazardous Waste Treatment Centre and report back to HSE Representative and Contract Holder..

Note: At present Hazardous wastes are stored at temporary storage yard, however once MIC Hazardous Waste Treatment Centre is operational all hazardous waste

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shall be transferred there. Also, analysis (Leachate test) for characterization of waste will be needed.

7.2.4 NON-HAZARDOUS WASTE

Sufficient numbers of bins shall be provided by the Contractor at all locations wherever there is possibility to generate domestic waste. Domestic wastes shall be removed from work place twice in a day. Offices and other areas shall be maintained clean. Toilets to be maintained cleaned.

Non-hazardous construction waste (soil, bricks, glass, and wooden material) to be collected separately in proper skips and sent disposal to facility as per the advice of QP regional/operational HSE Department.

All non-hazardous waste generated during any shut-downs of facilities shall be quantified by the Contractor's HSE Adviser and a written report submitted to concerned QP HSE Department on weekly basis.

7.2.5 SAFETY AND ENVIRONMENTAL CONTROLS

- Proper general housekeeping shall be maintained at all times
- Impervious liner shall be used for storage of wastes located in plant areas with the potential to contaminate groundwater resources
- Personal Protective Equipment and other safety precautions shall be taken for handling hazardous wastes as per the MSDS of that chemical containing waste

7.2.6 HANDLING OF PYROPHORIC / HAZARDOUS WASTE

The precautions necessary when opening up equipment, pipelines and entering a tank or vessel that may contain pyrophoric scale shall be as follows:

- The opening procedure of taking gas blanket equipment out of service for repair is to avoid causing a through draft of air. The initial opening shall be accompanied by the introduction of a water spray to wet the surfaces of the pyrophoric scale. The enclosed space should then be ventilated while the pyrophoric scale is kept wet.
- When removing pyrophoric scale by scrubbing / chipping, the area must be kept wet with a constant spray of water.
- Locations where pyrophoric scale is handled in the dry state shall be separated by distance, barricades or other means so that fire in one place will not spread to another location

Notes:

- The chipping procedure requires a hot work permit.
- Protective clothing and PVC gloves are to be worn.
- If contact with the skin occurs or any irritation is caused, those parts of the body must be washed with soap and water for 15 minutes.

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- Pyrophoric scale removed from equipment shall be stored in steel drums soaked with water, labelled and segregated. At least 4-6 inch of water to be filled-up in all pyrophoric drums.
- These materials shall be stored away from sources of ignition.
- Pyrophoric materials shall not be stored with flammable materials or in a flammable-liquids storage area.
- Fire fighting for burning pyrophoric scale shall be carried out using water spray.
- Gloves and long sleeved clothing shall be worn when handling pyrophoric materials. Additional protective clothing should be worn if the possibility of skin contact is likely.
- Eye protection in the form of safety glasses or goggles must be worn at all times when handling pyrophoric chemicals

7.2.7 ASBESTOS WASTE MANAGEMENT PLAN

Asbestos is a hazardous waste characterized as a carcinogen. Asbestos is a term given to a number of naturally occurring fibrous metal silicates of which three types are most common, namely Chrysotile (white asbestos), Amosite (brown asbestos) and Crocidolite (blue asbestos). The main environmental sensitive constituent is asbestos fibre.

Common commercial use of asbestos are: insulation materials, boards (as fire protection, filters, etc.), cement materials (corrugated sheets, tanks, pipes, flat sheets, prefab housing components, etc.), sprayed coatings (application to ceiling as fire protection), gaskets (sealing non-moving parts), friction materials (brake linings) and asbestos "plastics" (flooring tiles). Contractor shall implement the following safety precautions and methods for handling, transportation and disposal at QP facilities known to contain or suspected to contain asbestos:

A. Personal Protective equipment

Contractor workers shall wear positive pressure self-contained breathing apparatus (SCBA) and special coverall made of cotton polyester material cotton alone cannot be used because static build-up causes fibres to adhere to cloth. Provide Gloves, head coverings, and foot coverings; and Face shield, vented goggles.

Once the job is completed employees shall remove work clothing contaminated with asbestos only in clean change rooms.

B. Storage and Handling:

All waste known to contain asbestos shall be placed in impervious, double plastic bags at least 125 microns thick (1000 gauge) and must be completely sealed to prevent escape of airborne fibres. All sealed wrappings must be labelled to indicate asbestos and the nature of the hazard. A maximum load of 50 Kg of asbestos containing material should be loaded in each bag.

Contractor shall contact the Plant supervisor to raise the SAP waste management request and get the approval from waste controller and transfer the waste as per the manifest advice either to temporary waste storage or MIC Hazardous Waste Treatment Centre, as instructed by QP.

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C. Transportation and Disposal:

Transport of Asbestos waste shall be by a licensed hazardous waste carrier, with only one layer of bags carried in one load to avoid bags being ripped apart. The Contractor in co-ordination with the QP originating department is responsible for providing suitable, transport, equipment and manpower for the safe loading and unloading of the materials. Tipping of asbestos waste shall not be allowed at the disposal site. Although the final disposal will be done by the designated Hazardous Waste Treatment Centre, the Asbestos containing plastic bags shall be immediately covered with soil after placing them in the landfill cells.

7.2.8 CHEMICAL USE

Contractor shall submit the method statement to QP concerned Regional/operational HSE Department for the intended chemical that should include the following:

- Material Safety Data Sheet (MSDS),
- Area/equipment to be used,
- Safety precautions,
- Quantity of chemical,
- Approximate quantity if mixed with water and concentration of chemical in water and
- Chemical's waste disposal options

7.2.8.1 Use of potentially environmentally harmful chemicals

- The Contractor shall systematically and regularly evaluate, monitor and document chemical usage to ensure minimal discharges and optimal operation. If the Contractor manufactures or imports chemicals, it shall comply with prevailing statutes as well as official regulations and guidelines on evaluating and classifying chemicals. This shall be followed as per applicable regulations.
- The Contractor shall avoid discharging chemicals with a potential for long-term impact in the form of high bioaccumulation potential or poor degradability, or which are considered potentially harmful in other respects. That applies particularly to chemicals discharged in large quantities and/or in sensitive areas.
- Where such criteria fail to be met, the justification for continued use shall be documented or a plan for replacing the chemical prepared.
- The Contractor shall have a quality assurance system which ensures that the products with the highest purity are used.

7.2.9 WASTE WATER MANAGEMENT

As per new Ministry of Environment (formerly SCENR) regulations implemented from April 2007, treated or untreated waste water is not allowed to be discharged into the sea, Therefore, if hazardous materials are contained in water generated during plant shut-down, competent Government permission (including the Ministry of the Environment) shall be obtained in advance for appropriate means of disposal

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7.3 ENVIRONMENTAL INCIDENTS

The QP HSE policy states that Contractors working on behalf of the corporation shall apply QP's HSE standards'. Contractor shall report all environmental incidents involving his operations on QP business, in accordance with the QP Corporate procedure for incident management (QPR-STM-001), and the QP Specifications for Reporting Environmental Incidents (QP-SPC-EV-005). Contractor shall also comply with the requirements stated in section 4.12 of these regulations. The types of environmental incidents to be reported shall include but not limited to:

- Oil Spills
- Produced water
- Chemical spill (attach the MSDS)
- Gas release
- Noise
- Odour
- Solid waste, etc.

7.4 QATAR ENVIRONMENTAL STANDARDS

When a Contractor is engaged in a contract with QP that involves: (a) the handling and use of hazardous wastes, (b) emission of environmental noise and (3) emission of wastes to air, water and ground, then the Contractor shall conform to the provisions of the (1) 'Environmental Protection Law of 2002' and (2) Annexes of the Executive By-Law for the Environmental Law, Decree Law No. 30 for 2002. The annexes contain environmental standards for the following:

- Annex (1): Categorization of Public and Private Development Projects which are likely to cause Environmental Impacts.
- Annex (2): Application Forms for Authorizations, Permits and Licenses.
- Annex (3): Standards for Environment Protection.
- Annex (4): Standards and Specifications of Hazardous Materials when discharged into the water environment.
- Annex (5): The administrative Agencies concerned with the issue of licenses in relation to hazardous wastes.
- Annex (6): the record of the activities carried out by the facility/ installation
- Annex (7): The Rules for the Management and Trans-boundary movement of hazardous wastes.
- Annex (8): The Rules for the import, production, handling and shipping of Hazardous Materials.

8.0 ROLES AND RESPONSIBILITIES

Roles and responsibilities of QP and Contractors regarding HSE management regarding any Contract are as shown in the introduction to this document. For the roles and responsibilities of individual Contractor personnel, please refer to Appendix 1 of this document.

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9.0 REFERENCES

1	OGP: HSE Management – Guidelines for working together in a Contract environment	Report No. 6.64/291, Oct. 1999
2	Personal Protective Equipment	IP-SF-001 (QP Intranet)
3	QP Procedure for managing HSE in Contracts	HSEPR-QP-11
4	QP Guidelines for managing HSE in Contracts	HSEGL-QP-11-01
5	QP Safety Regulations for Contractors (Now superseded by this document)	QP-REG-S-001
6	QP regulations for purchases, works and auctions	QP Intranet
7	QP Lifting Equipment Technical Regulations	QP-REG-Q-001
8	Guidelines for Lifting Machinery and Equipment	IP-SF-014
9	QP Guidelines for Hand /Power tools Safety;	Doc. No.: IP-SF 017
10	Corporate Procedure for Incident Management	QPR-STM-001
11	Risk Assessment at Work – Environment, Health and Safety Committee, UK RSC	UK RSC
12	QP Guide to HSE Management System	QP Intranet
13	Corporate Standard for the establishment and operation of Medical Aid Centres in QP Locations	QP-STD-MS-001
14	Excavation Procedures for Gas Operations, Dukhan Fields and Offshore	IPS-OPS-023, 032, and 036
15	Confined Space entry procedures for Gas Operations, Dukhan fields, and Offshore	IPS-OPS-027, 031, and 035
16	Inshore Diving Regulations	OPS-REG-001
17	Isolation, lock off and tag procedure for Gas Operations, and Offshore	IP-OPS-021 and IP-OPS-037
18	Corporate Standard for First-Aid Requirements in All Areas	QP-STD-MS-002
19	Ergonomic Standard for Office Furniture	STD-HSE-004
20	Job Hazard Analysis	IP-SF-004
21	Safe Handling of Chemicals	IP-SF-008
22	Occupational Noise Exposure	IP-SF-010
23	Asbestos Abatement	GD-SF-000
24	Heat Stress	GD-SF-001
25	Workplace (Health, Safety and Welfare) Regulations 1992, UK	1992, UK

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26	American Society of Heating, Refrigeration, and Air Conditioning Engineers (Standard 55 – 1992 to 2000)	(Standard 55 – 1992 to 2000)
27	Industrial Ventilation Manual, ACGIH, 2004	ACGIH, 2004
28	Control of Substances Hazardous to Health Regulations (amended) 2004, UK	2004, UK
29	Health and Safety in the Office; The New South Wales Government; Work Cover Authority; 1993	Work Cover Authority; 1993
30	US Federal Food, Drug and Cosmetic Act (amended) 2004	2004
31	Corporate Standard for the establishment and operation of Medical Aid Centres in QP Locations	QP-STD-MS-001
32	Fitness For Work Procedure - Section II	OPR-MS-007
33	QP Corporate philosophy for fire and safety	QP-PHL-S-001
34	Environment Protection Law of 2002 URL: http://qpnet.qgpc.net/qpnet.nsf/web/ev_envlegalen	Qatar Environmental Protection Law
35	By-Law No.2 Environmental Protection Law and its annexes URL: http://qpnet.qgpc.net/qpnet.nsf/web/ev_envlegalen	Qatar Environmental Law Annexes
36	Waste Management Specification, SPC-ENV-001	SPC-ENV-001
37	QP Specifications for Reporting Environmental Incidents	SPC-ENV-005
38	QP Specifications for Environmental Site Selection and the Abandonment & Restoration of Facilities	SPC-ENV-006
39	QP Guidelines for Waste Management for Offshore Operations and Halul	QP-ENV-001

10.0 APPENDICES

APPENDIX 1: HSE MANAGEMENT ROLES AND RESPONSIBILITIES OF CONTRACTOR PERSONNEL ON QP CONTRACTS

APPENDIX 2: HSE DEVIATIONS APPROVAL FORM (HSEFM-QP-04)

APPENDIX 3: CONTRACTORS MONTHLY HSE PERFORMANCE REPORT FORM (HSEFM-QP-02)

APPENDIX 4A: GENERAL SPECIFICATION FOR CONTRACTOR COMPOUND AND ACCOMMODATION

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APPENDIX 1: HSE MANAGEMENT ROLES AND RESPONSIBILITIES OF CONTRACTOR PERSONNEL

Job Function	Roles and Responsibilities
Contractor Senior Management	HSE management responsibilities include: <ul style="list-style-type: none"> • Ensure HSE management systems are in place that address the organization, responsibilities, practices, procedures, processes and resources needed to fully take care of health, safety and environmental issues in the work place • Take full responsibility and be fully accountable for HSE performance of own employees and sub-contractors. This requires taking all necessary steps to ensure that all work/services in the contract is performed in such a manner as to prevent HSE incidents and to follow all QP HSE policies, procedures, rules and regulations including those of the State of Qatar. Any consequences of failure or breach shall be borne by the Contractor.
Contractor's Project Manager	<p><i>The person named in the Contract to represent the Contractor in respect of the Contract and to be responsible for the management of the Contract.</i></p> HSE management responsibilities include: <ul style="list-style-type: none"> • Ensures availability in the workforce, of competencies required for HSE management and compliance to requirements within the Contractor's organization including sub-contractors • Ensures sub-contractors work to the same HSE standards as expected of the main Contractor by QP • Assures and provides adequate resources and time to manage the Contract • Formally notifies the Contract Holder of any Contractor-nominated key personnel such as HSE Officers and site representative (s) • Ensures that any necessary work required following an audit report is resourced and carried through in a timely manner • Have an understanding of the contents of QP's Contractor HSE Management Guidelines or similar in-house rigorous guidelines for monitoring HSE in the performance of Contracts
Contractor Site Representative	<p><i>The person appointed in writing by the Contractor's Project Manager to assist him in supervising the execution of the Contract activities on a given site. (In some cases, this is the Contractor's Site Engineer.)</i></p> HSE management responsibilities include: <ul style="list-style-type: none"> • To fulfill the pre-execution HSE requirements and supervise the work daily on behalf of the Contractor • To implement the Contractor's HSE plan and Quality plan • To seek formal approval from the Contract Holder for any proposed deviations from or amendments to the Contract HSE or other plans • To implement any additional HSE requirements as agreed with the Contract Holder

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	<ul style="list-style-type: none"> • To attend HSE and other regular meetings with the Contract Holder or his/her representative • To organize and participate in audits/inspections and to implement the findings thereof
Contractor HSE Adviser (HSE Officer or Safety Officer)	<p><i>This is the Contractor's HSE Adviser assigned to administer and advise on HSE related issues as per the Contract. Ideally his role should be basically advisory rather than that of enforcement of HSE rules. Supervision and accountability for HSE on site should lie with the Foremen, Contractor's Site Representative and the Contractor Manager. The Contractor HSE Officer must be qualified according to QP requirements and his appointment to the performance of the Contract approved by QP as per procedure.</i></p> <p>HSE management responsibilities include:</p> <ul style="list-style-type: none"> • To advise Contractor staff and management on ways to fulfill the HSE requirements in the Contract HSE Plan • Monitor and report HSE performance including leading (proactive) and lagging indicators • Communicate to workers information on workplace hazards and their management • Conduct emergency response drills and take action to improve • Conduct HSE meetings and promote safe work practices • Ensure close-out of inspection/audit recommendations • Be reasonably familiar with QP HSE Policies, procedures and guidelines
All personnel	<p>HSE responsibilities include:</p> <ul style="list-style-type: none"> • Ensure they are fit for duty including having proper rest and being in the proper mental state of mind • Adhere to all QP HSE rules and regulations including those on driving, smoking, drugs and alcohol • Immediately stop any work in which HSE is not being properly managed and report to the supervisor • Actively participate in HSE programs including meetings, drills, inspections and audits. • Report all HSE incidents immediately including near-misses (i.e. those without noticeable health, safety or environmental impact).

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APPENDIX 2: HSE DEVIATIONS APPROVAL FORM (HSEFM-QP-04)

HSE DEVIATIONS APPROVAL FORM *					
	Name	Ref. Ind.		Name	Ref. Ind.
From: Contract Holder			To: Contract Sponsor		
Contract Title					
Contractor				Contract No.	
Sub-Contractor					
Application To Authorise a Deviation from Agreed HSE Requirement(s)					
Details of deviation Required (procedure, method, equipment, etc.):	1. 2.				
Reason(s) for Deviation	<ul style="list-style-type: none"> 				
Scope of Deviation (summary of extent):					
Duration of Deviation:	Start Date: Time:		End Date: Time:		
Details of Control Measures:	Hazards		Controls		
	1. 2. 3.		1. 2. 3. 4.		
Notes:					
I confirm that the activities in the Contract covered by this HSE deviation application will be executed in a safe, healthy and environmentally responsible manner.					
	Name	Signature		Date	
Contractors Manager					
Contract Holder					
QP HSE Adviser					
I hereby approve the deviation be allowed for this Contract to allow work to proceed, subject to the full implementation of the HSE risk management controls.					
	Name	Signature		Date	
Contract Sponsor					

** Please attach additional sheets of details if necessary*

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APPENDIX 3: CONTRACTOR MONTHLY HSE PERFORMANCE REPORT FORM (HSEFM-QP-02)

(To be submitted monthly by Contractor to Contract Holder who will endorse and send to HSE Adviser)

A. HSE PERFORMANCE INDICATORS

CONTRACT NUMBER:		CONTRACT TITLE:	
SPONSOR DEPT.:		CONTRACTOR:	
HSE STATISTICS FOR THE MONTH OF:			
Number of EMPLOYEES WORKING ON CONTRACT* :			
Number of MAN-HOURS worked (including any overtime) in the month:			
Number of FATALITIES in the month:		(FAT)	
Number of PERMANENT DISABILITIES in the month:		(PPD & PTD)	
Number of LOST WORKDAY CASES in the month:		(LWC)	
Number of RESTRICTED WORK CASES in the month:		(RWC)	
Number of MEDICAL TREATMENT CASES in the month:		(MTC)	
Number of FIRST AID CASES in the month:		(FAC)	
Number of NEAR MISSES in the month:		(NMs)	
Number of UNSAFE ACTS / CONDITIONS reported in month		(UA/UC)	
TOTAL RECORDABLE OCCUPATIONAL ILLNESSES in month:		(TROI)	
Number of CALENDAR MAN-DAYS LOST due to SICKNESS ABSENCE			
TOTAL RECORDABLE INCIDENTS in the Month:		(TRI)	
Number of: NON-ACCIDENTAL DEATHS in the month:		(NAD)	
Number of: ROAD TRAFFIC ACCIDENTS in the month:		(RTA)	
Quantity of WASTE GENERATED in the Month (Kg):		(RTA)	
Number of personnel HSE TRAINED in the month (include HSE induction)			
Number of TOOLBOX TALKS held in the month			
Number of HSE MEETINGS held in the month			
Number of HSE INSPECTIONS/AUDITS held in the month			
Number of EMERGENCY DRILLS held in the month			
MONTHLY LOGISTICS STATISTICS		NO. OF VEHICLES/CRAFTS	TOTAL KILOMETRES DRIVEN
Heavy Vehicles (>3500 kg)			
Light Vehicles (Cars, etc)			
Marine Vessels (MV's)			

Names of **INJURED PEOPLE ABSENT FROM WORK OR ON RESTRICTED WORK**** during the month:

NAME	DATE
	WAS CERTIFIED UNFIT ON
	WAS CERTIFIED UNFIT ON

Names of previously injured people, **CERTIFIED FIT TO RETURN TO WORK**** during the month, following an LTI absence or a period of restricted work.

NAME	DATE
	RETURNED TO WORK ON
	RETURNED TO WORK ON

Signed by Contractor:		Signed by Contract Holder:	
Position in Company:		Reference Indicator:	
Date:		Date:	

NOTES: All returns should relate to the *previous calendar month only*.

* The average should be used if the number of employees fluctuated from day to day during the month.

** Attach additional sheets if necessary

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B. DEFINITIONS FOR HSE PERFORMANCE INDICATORS

Fatality (FAT)	A fatality is a loss of life (death) resulting from a Work Injury, or Occupational Illness, regardless of the time intervening between injury/illness and death.
First Aid Case (FAC)	Any one-time treatment and subsequent observation of minor scratches, cuts, burns, splinters, etc., which do not ordinarily require medical care by a physician. Such treatment and observation are considered First Aid even if provided by a physician or registered professional personnel.
Lost Time Injury (LTI)	A work related injury, which renders the injured person unable to perform his regular job or Restricted Work on any day after the day on which the accident occurred. Note: if, in a single Incident 20 people receive lost time injuries, then it is accounted as 20 LTI's (not 1 LTI). Lost Time Injuries are the sum of Fatalities, Permanent Total Disabilities, Permanent Partial Disabilities, and Lost Workday Cases. $LTI = (FAT+PTD+PPD+LWC)$
Lost Workday Case (LWC)	A Lost Workday Case is any reportable injury other than a Permanent Partial Disability which renders the injured person temporarily unable to perform any regular job or Restricted Work on any day after the day on which the injury was received. In this case "any day" includes rest day, weekend day, scheduled holiday, public holiday or subsequent day after ceasing employment. (Note: This definition deviates from that of OSHA which considers restricted work as a lost workday case). A single Incident can give rise to several Lost Workday Cases, depending on the number of people injured as a result of that Incident. It is a Lost Time Injury.
Medical Treatment Case (MTC)	A Medical Treatment Case is any reportable injury that involves neither Lost Workdays nor Restricted Workdays but which requires treatment by, or under the specific order of, a physician or could be considered as being in the province of a physician. Medical Treatment does not include First Aid even if this is provided by a physician or registered professional personnel.
Near Miss	A Near Miss is an incident which could have but did not result in injury, illness, damage, product loss or harm to the company reputation.
Occupational Illness	An Occupational Illness is any work-related abnormal condition or disorder, other than one resulting from a reportable injury, caused by or mainly caused by exposure to environmental factors associated with the employment. It includes acute and chronic illness or diseases, which may be caused by inhalation, absorption, ingestion, or direct contact. Whether a case involves a reportable injury or an occupational illness is determined by the nature of the original event or exposure, which caused the case, not by the resulting condition of the affected employee. Injuries are caused by a single event. Some exceptions exist such as malaria and food poisoning which are classified as Occupational Illnesses. Cases resulting from anything other than a single event are considered occupational illness.
Non-accidental death	Any case of death of a person either: - where there is no identifiable incident or trauma involved, or - that is the result of an apparent suicide.
Permanent Partial Disability (PPD)	Permanent Partial Disability is any work injury which results in the complete loss or permanent loss of use of any part of the body or any permanent impairment of functions of parts of the body, regardless of any pre-existing disability of the injured member or impaired body function. It is a Lost Time Injury.
Permanent Total Disability (PTD)	Permanent Total Disability is any work injury that results in complete inability of the injured person to perform any form of work on a permanent basis. It results in termination of Employment.
Restricted Work Case (RWC)	A work related injury, which renders the injured person unable to perform his regular duties but results in a Restricted Work assignment on any day after the day on which the accident occurred. The Restricted Work assignment must be meaningful and pre-established, or a substantial part of a regular job.
Road Traffic Accident (RTA)	An Incident which has involved a vehicle and which has resulted in actual Injury and/or Damage (Loss) Assets, the Environment or the Company's reputation. For the purpose of Incident Reporting procedures, windscreen damage caused by thrown up road debris e.g. stone chips shall not be statistically reportable unless more serious damage or personal injuries occur as a result.
Risk Assessment Matrix (RAM)	The Risk Assessment Matrix (RAM) is a tool that standardises qualitative risk assessment and facilitates the categorisation of risk from threats to health, safety, environment and reputation. The matrix axes, consistent with one definition of risk, are Severity of consequences and Likelihood .

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APPENDIX 4A:

GENERAL SPECIFICATION FOR CONTRACTOR COMPOUND AND ACCOMMODATION

The Contractor shall construct and maintain a temporary compound and accommodation for site staff complete with electricity, messing, potable water storage and distribution, diesel fuel storage and sewage/effluent water disposal facility.

The Contractor shall prepare and submit a detailed design and specification of the accommodation for the approval of QP prior to construction.

The Contractor will be allocated an area by QP in which to erect his camp. At the end of the Contract, the Contractor has to demobilize his camp.

1) SPECIFICATIONS AND CONDITIONS

- a) The Porta Cabins are to be installed on a location as allocated by QP. (Area Operations Manager)
- b) Any further additions to the Contractor campsite, if already existing, require the specific and separate approval of QP (Area Operations Manager).
- c) Site preparation as well as the provision of all connections to the Porta Cabins (e.g. water, power and sewerage) is the responsibility of the Contractor. The above must be in line with the established QP Standards and are subject to final approval by QP's Representative.
- d) The campsite should be equipped with a water header tank and water meter to measure bulk consumption.
- e) Temporary accommodation and ancillary facilities should comply with certain minimum standards of construction and hygiene, as follows:
 - Overcrowding will not be allowed and a minimum of 3 square meters per person should be allowed for a maximum number of 4 persons per room.
 - Additionally a minimum of one toilet per 6 persons and one wash basin and one shower per 6 persons should be provided.
 - Kitchen facilities and/or food preparation will not be allowed in the sleeping accommodation.
 - All food must be stored, cooked and consumed in specific designated areas.
 - Where "Porta Cabin" type accommodation is used, these should be constructed in accordance with the general specifications for porta cabins (see below) as a minimum requirement.
 - Waste material must be separated into combustible and non-combustible wastes. Contractor will supply and use his own plastic disposable garbage bags and deliver with his own means all combustibles to a designated burning facility. Non-combustibles are to be placed in plastic bags into dedicated skips/containers for transportation to a dedicated area.
 - All kitchen equipment, including electrical appliances, utensils, crockery, cutlery, etc. should be of a standard acceptable to QP. The use of ELECTRIC COOKERS only will be permitted.

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- “As built” diagrams and drawings are to be supplied to QP’s representative on completion of the installation.

f) Maintenance of the accommodation and associated facilities supplied/erected by the Contractor are the responsibility of the Contractor and should be in line with QP Standards.

Defects are to be rectified and the installation safeguarded against fire, safety and hygiene hazards.

QP reserves the right of access to, and inspection of, the facilities at any time. Where a satisfactory standard of maintenance and hygiene is not maintained, QP reserves the right to ban further occupation until required works have been completed.

h) Upon completion of the Contract, Contractor will dismantle the campsite area. Contractor should note that whereas QP has provided certain recreation facilities for its own staff, **CONTRACTOR PERSONNEL DO NOT HAVE ACCESS TO THE SAID FACILITIES.**

Contractor should, therefore where appropriate, make alternative arrangements for the use of his own personnel.

h) The Contractor will provide his own SEPTIC TANK and will make his own arrangements for sewage and effluent water disposal subject to approval of the QP’s Public Health Officer.

2) SITE OFFICE AND STORES

The Contractor will be allowed a working area on the site which shall be maintained by the Contractor for his site offices etc. and on completion of the Contract he shall reinstate this area at his own expense, to the satisfaction of the QP Representative. The Contractor will also be given access to any reasonable area around the site.

3) CLEANLINESS, PUBLIC HEALTH AND SEWAGE

The Contractor shall take great care and all reasonable precautions to ensure that roads and thoroughfares used by him either for the construction of the works or for the transport of plant, labour and materials are not made dirty as a result of such construction or transport. In the event of their becoming dirty the Contractor shall immediately take all necessary steps to clean them.

The Contractor shall keep his camp and worksite clean at all times to the satisfaction of the QP Representative.

In all matters of public health the QP’s policies shall apply and the decisions of QP’s Public Health Officer will be mandatory.

4) PROTECTION OF ROADS AND REINSTATEMENT

The Contractor shall use all reasonable means to prevent the roads communicating with the site from being subjected to excessive weights or extraordinary traffic by any vehicles of the Contractor or any of his sub-contractors . On completion of the Contract the Contractor shall reinstate all disturbed land surfaces whether within or without the boundaries of the site at his own expense and to the satisfaction of the QP’s Representative.

5) CONSTRUCTION PLANT, TOOLS, EQUIPMENT, POWER ETC.

The Contractor shall provide all construction plant, tools and equipment, including lubricants, all storage facilities necessary to enable him to carry out the work at his own cost in accordance with QP Standards. The Contractor shall arrange to import

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any SOIL, STONES, SAND AND AGGREGATE required for construction works and back fill.

All electrical equipment, before being used on the QP premises must be approved in writing by the QP representative. Electrical equipment includes mains powered equipment, lamps portable tools, flexible cables, switchgear, motors, battery powered equipment, electrical equipment powered by diesel driven engines etc. QP may provide power generation, however if the Contractor is to provide own power generation, installations and pre-start up shall be subject to QP approval.

It is the Contractor's responsibility to install, use and maintain all portable electrical equipment in their possession in a safe and good condition.

6) SUPPLY OF DIESEL FUEL ON HALUL ISLAND

The diesel fuel may be provided by the QP at a nominal charge (to be advised by the concerned QP department) on a monthly basis against a consumption programme to be submitted by the Contractor to QP monthly in advance.

If QP agreed to provide diesel fuel, the Contractor is to provide a bowser of not more than 10 bbls (15,900 litres) capacity for transporting diesel fuel to his storage tank and QP reserves the right to carry out an inspection of the equipment provided for this purpose at any time.

The Contractor, at his own expense, shall provide diesel storage tank for his power generator and vehicles. The tank shall be segregated from hot areas such as generators, cutting or welding etc., by a fire wall and be surrounded by a bund wall to contain the contents of the fuel dump + 50%.

7) SUPPLY OF POTABLE AND INDUSTRIAL SWEET WATER ON HALUL ISLAND

QP may undertake supply of potable and industrial sweet water in controlled quantities for reasonable use.

The Contractor, at his own expense shall erect an overhead water tank(s) complete with plumbing, and water connections. QP reserves the right to carry out an inspection of the facility at any time.

8) MEDICAL FACILITIES

QP operates clinics in operational areas where first aid treatment for minor injuries can be obtained. In the event of a serious injury, QP will offer the Contractor assistance in treating and evacuating the victim by appropriate means, any such evacuation will be at the Contractor's expense.

However, regardless of any medical assistance which may be offered by QP, QP accepts no liability as a consequence of its provision and the Contractor shall remain wholly responsible for the well being of his personnel and for all cost/claims and other charges which may arise in connection with or in consequence of injury to his personnel.

9) FIRE EXTINGUISHERS

Fire extinguishers shall be provided for all accommodation units including kitchen, mess room, recreation rooms, clinic and radio (if applicable). Further fire fighting facilities shall be provided for magazines, fuel tanks, vehicle parking area, power generator room and workshops.

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10) SMOKE DETECTORS

Smoke detectors, connected to a local fire alarm system shall be provided for all camp units including accommodation, kitchen, mess room, recreation rooms, clinic, radio room(if applicable), paints store, explosive store and workshops.

11) ILLUMINATION

The camp roads shall be provided with lighting system so that the camp facilities and roads and external areas around camp facilities can be seen clearly at all times during the hours of darkness. Similarly emergency response equipment shall be kept in well illuminated positions. Muster areas must be clearly indicated and illuminated.

12) CONTRACTOR CAMP LAYOUT

The camp is often sited in areas within the QP sphere of responsibilities. The camp represents the primary life support system for Contractor personnel living in it. It is essential that due consideration is given to the segregation of hazardous materials and equipment such as explosives, detonators, fuel, paint etc from personnel accommodation and related facilities.

In considering the layout, three factors must be borne in mind:

- Prevailing wind
- Slope of the ground
- Power generator noise.

The prevailing wind will influence spreading of fire.

The slope of the ground will influence the drainage. Therefore the slope of the ground should be such that the drainage should be naturally away from the camp, that is to say the camp should be on higher ground.

The power generator should be on the lee-side of the camp, situated well away from the accommodation.

The distance between the magazines and accommodation depends on the quantity of hazardous materials stored. If the distances following section are impractical, shorter distances may be considered, provided that the risk is evaluated and reduced by other means.

13) RECOMMENDED DISTANCE FOR CAMP FACILITIES

- a) Explosive magazine 100 meters from fuel tank or paint store or accommodation
- b) Main fuel tank 100 meters from accommodation or explosive magazine
- c) Power generator 30 - 50 meters from accommodation.
- d) Waste disposal pits 30 meters from the accommodation area.
- e) Septic tank 30 meters away from any water supply and 30-40 meters away from the camp accommodation.
- f) Dedicated food and water storage should be set-up separated from the fuel storage area.
- g) Volatile materials such as petrol or kerosene 30 meters from other magazines and accommodation.
- h) Roads inside the camp shall be 6 metres wide for the main roads and 4 metres wide for secondary roads.
- i) 2-3 metres spacing between individual portacabin blocks shall be maintained.

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14) CAMP SITE PREPARATION

Location: The QP Area Operations Manager shall allocate a suitable area for Contractor's camp.

Size: The size shall be sufficient to contain accommodation, magazines, workshops, etc. using recommended distances.

Site: The site and an area of 30 meters around the site shall be cleared of all rubbish and dry grass.

Fencing: Local conditions may make it necessary to control the admittance of persons by fencing the whole or part of the site. However, minimum two openings (gates) shall be provided, width and height of gates shall be sufficient for the fire truck to have admittance to the site

APPENDIX 4B:

GENERAL SPECIFICATION FOR CONTRACTOR PORTACABINS

CHASSIS: 150 X 75m MS steel channel skids welded with spacers to form a frame. Steel protected with 2 coats of red lead primer and finished with brown marine enamel. An external frame and lifting hook arrangement to be provided to assist transportation.

BASE/FLOORS:

- 18mm flooring grade Marine plywood fixed to 150 x 50mm nominal timber joists at 400mm centres and overlaid with single sheet heavy duty vinyl flooring cover, must be continuous into skirting. Also it should be vinyl to prevent water ingress from washing the floors.
- Insulate floor with 50mm rigid Polystyrene glued to underside of floor.
- The gap underneath the portacabin shall be boarded out with wire-mesh. This is to protect rodents, cats etc nesting underneath the portacabin.

WALLS:

- Structural insulated sandwich panel 80mm thick with an external cover of ½ inch marine plywood corrugated aluminium sheeting, onto timber studding @ 400mm centres.
- 50mm infill glass fibre or Rockwool insulation covered with an internal lining of self finished decorative plywood.
- For housing air-conditioners in each living or office room an opening of size 50 x 70 cm is to be provided.

ROOF:

- Pitched insulated sandwich panel with 150mm overhang, covered externally with continuous "Marley" sheeting.
- Roof to have a 75mm glass fibre wool insulation giving a heat transfer coefficient (U) value of 0.42 W/M²/Deg.C.
- Ceiling of 6 mm Marine plywood with white emulsion or stippled PVC finish.
- Provide spacers at eaves to protect portacabin from spreader frame wires.

BATHROOM

- Waterproofed shower cubicle with a curtain on one side only. Waterproof full height surfacing or glazed tiling to walls. Floors to be covered as specified under "base" above.

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ELECTRICAL	<ul style="list-style-type: none"> • Ceiling to be surfaced with a waterproof membrane. • All joints to be Formica strip and silicone compound sealed (or similar approved method). • Provide extract fan, pull switch operated. • Wiring to S.E.D. regulations - completely concealed, run in PVC conduits and terminated at regulation meter board with ELCB protection. • No multi-way plugs or adapters shall be used except for power strip which are equipped with surge protection and suppression certified with “CE” marking or “UL” rating. All lighting bulbs used in wet or damp areas to be equipped with fixture that can be protected from water contact.
PLUMBING:	To comply with S.E.D water Department regulations - hot and cold water pipe-works in copper and drainage in PVC.
ACCESSORIES	For supporting air-conditioner one steel bracket is to be provided in addition to one ladder provided for each entrance.
GENERAL	<p>“Fully equipped” cabin, this should include:-</p> <p><u>A) Senior Staff Cabin</u></p> <ul style="list-style-type: none"> • Double built - in lockers with shelves • Double built-in bunk beds with bed curtains and drawers underneath bottom bunk bed. • Reading lights • Sun blinds and curtain rails • shower curtains, soap dishes and towel rails • Shaving points (combine with mirror light) • 30 Litre water heater • Air conditioner • Adequate electric sockets • Writing desk with book shelf above. • TV Antenna socket <p><u>B) Operators cabin</u></p> <ul style="list-style-type: none"> • 2 x Double built- in lockers with shelves • 2 x Double built-in bunk beds, with bed curtains and drawers underneath the bottom bunk beds. <p>The rest of the items same as for Senior Staff cabin above.</p>
WINDOWS	Aluminium vertically hung sashes with slider and fly-screen and set.
DOORS	<p>External - 50 mm solid core doors set into hardwood frames and finished in teak or mahogany colour.</p> <p>Internal - Flush plywood doors varnished or painted and set into hardwood door frames.</p>