



Exploration & Production

GENERAL SPECIFICATION

PROJECTS CONSTRUCTION

GS EP PJC 401

Health, Safety and Environment on construction and installation sites

05	10/08	Update standard reference
04	10/05	Change numbering (EP insertion)
03	04/04	Modifications after French translation
02	10/03	Full revision + Change of Group name and logo
01	11/01	First issue from PJC/MSO
Rev.	Date	Notes

Contents

1. Scope	3
2. Reference documents.....	3
3. Definitions.....	5
4. Health, Safety and Environmental Plan.....	6
4.1 Objectives	6
4.2 Content of Site HSE Plan	6
4.3 HSE policy and goals.....	7
4.4 Organisation and responsibilities.....	7
4.5 Training.....	7
4.6 Medical fitness	8
4.7 Working rhythm.....	8
4.8 Risk assessment.....	8
4.9 Risk mitigation	9
4.10 Management of change	17
4.11 Road traffic	17
4.12 Subcontractors.....	17
4.13 Emergency preparedness.....	18
4.14 Security.....	19
4.15 Alcohol, drugs policy	20
4.16 Smoking policy.....	20
4.17 Accommodation and catering	20
4.18 Environment.....	20
4.19 Communication and meetings	20
4.20 Inspection	22
4.21 Audit.....	22
4.22 Incident/Anomaly investigation and reporting	23
4.23 Improvement plan	24

1. Scope

This document defines the safety, health and environmental requirements applicable to CONTRACTOR during **construction and installation activities** on onshore and offshore sites including swamp areas.

The aim of this specification is to make sure that the minimum measures regarding risk mitigation have been taken during the progress of works on site so that:

- Health and safety of personnel is guaranteed
- The environment is respected
- Equipment and assets are kept securely.

CONTRACTOR shall issue an Health, Safety and Environmental Plan (Site HSE Plan) specific to each **construction or installation site** of the **project**.

The main topics to be covered in the Site HSE Plan are listed in chapter 4 below. **As a minimum, the requirements listed in each section of the chapter 4 shall apply.**

The Site HSE Plan shall be in accordance with the HSE Plan of the **project** and the HSE **management system** of CONTRACTOR if existing.

The requirements of contractual documents especially **Exhibit L** take precedence over the present specification.

Where works are performed on **COMPANY site**, a bridging document shall be issued by the CONTRACTOR for co-ordination with COMPANY HSE Management System.

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

Standards

Reference	Title
NF EN 12021	Respiratory protective devices. Compressed air for breathing apparatus.

Professional Documents

Reference	Title
OGP report n° 6.52/244 September 1999	Glossary of HSE terms
OGP report n° 6.64/291 September 1999	HSE management guidelines for working together in a contract environment

Reference	Title
OSHA record keeping guidelines	Chapter V - Analysis of recordability of cases
OGP report n° 6-36/210 July 1994	Chapter VI - Evaluating the extent of recordable cases
UKOOA February 1999	Guide line for development and application of health, safety and environmental management system
	Guidelines for environmental health for offshore installations

Regulations

Reference	Title
European Directive n° 83/477/CEE dated 19/09/1983	Protection of workers from the risks related to exposure to asbestos at work

Codes

Reference	Title
Not applicable	

Other documents

Reference	Title
Not applicable	

Total General Specifications

Reference	Title
GS EP STR 301	Fabrication of offshore steel structures
GS EP CIV 101	General earthworks
GS EP CIV 403	Temporary construction camps and associated facilities (onshore)
GS EP STR 401	Loadout, seafastening, transportation and installation of offshore structures
GS EP STR 402	Anchorage of support vessel on an offshore site
GS EP STR 403	Acceptable criteria of a support vessel for offshore works
GS EP STR 404	Marine aspect for load-out, transportation and installation of offshore structures
GS EP LSO 410	Operations by Divers
GS EP SPS 001	Design philosophy and requirements for Subsea Stations
GS EP STR 901	Design rules and construction standards for ancillary structures of offshore installations

Reference	Title
GS EP PLR 401	Installation of submarine pipelines
GS EP PLR 403	Installation of onshore pipelines
GS EP PLR 408	Transportation of submarine cables, umbilicals and flexible pipes

3. Definitions

COMPANY	COMPANY refers to the company that has awarded to CONTRACTOR the construction of the work on COMPANY's site and/or CONTRACTOR's site
COMPANY site	COMPANY Site means any office, premises, onshore area, offshore platform and any other offshore supports with production or drilling activities
CONTRACTOR	CONTRACTOR refers to the company that was awarded by the COMPANY the construction of the work on COMPANY's site and/or CONTRACTOR's site. It includes all sub-contractors and VENDORS who perform any work on COMPANY's site or CONTRACTOR's site. Subcontractor refers to any company or person to whom CONTRACTOR has subcontracted performance of any part of the work.
Employee	Person directly or indirectly employed by a CONTRACTOR or subcontractor
Construction or installation activities	All activities undertaken on a construction or installation site which include: • Main activities like civil engineering, pre-fabrication work, assembly, tie-in, welding, static and dynamic testing, etc. • Secondary activities like scaffolding, lifting operations, cleaning operations, equipment maintenance, etc.
Construction or installation site	Locations where the construction and installation activities take place including COMPANY site , warehouses, workshops, CONTRACTOR offices, accommodation and catering premises, any kind of support vessels
Project	A project includes all activities carried out by the CONTRACTOR in the frame of a contract which has been awarded to him. A project may include several construction and installation sites .

HSE management system The COMPANY structure, responsibilities, practices, procedures, processes and resources for implementing health, safety and environmental management.

Incident An event or chain of events which has caused or could have caused injury, illness and/or damage (loss) to assets, the environment or third parties.

For other definitions, refer to OGP (International Association of Oil and Gas Producers) documents.

4. Health, Safety and Environmental Plan

4.1 Objectives

The objectives of the Site HSE Plan are to:

- Ensure compliance with health, safety and environmental local regulations together with applicable international regulations.
- Ensure that health, safety and environmental issues are thoroughly addressed during the **construction and installation activities** and that HSE is considered at all stages of the decision-making process.
- Ensure consistency with the HSE **management system** of CONTRACTOR and the HSE Plan of the **project**.
- Establish a common understanding of specific HSE requirements and to ensure awareness of these requirements by everybody working on site.
- Ensure compliance with HSE COMPANY requirements.

4.2 Content of Site HSE Plan

The following sections define the minimum topics that the Site HSE Plan is to address:

- HSE policy and goals
- Organisation and responsibilities
- Training
- Medical fitness
- Working rhythm
- Risk assessment
- Risk mitigation
- Management of change
- Road traffic
- Subcontractors
- Emergency preparedness
- Security
- Alcohol and drugs policy

- Smoking policy
- Accommodation and catering
- Environment
- Communication and meetings
- Inspection
- Audit
- Incident/Anomaly investigation and reporting
- Improvement plan.

Each section below defines the minimum requirements to be applied on each **construction and installation site**.

However CONTRACTOR shall use his own experience to take into account the specific hazards associated with the **construction and installation activities** and develop accordingly the most appropriate health, safety and environmental provisions.

Depending on CONTRACTOR organisation the HSE plan may be split in Health Plan, Safety plan and Environmental Plan.

4.3 HSE policy and goals

CONTRACTOR shall declare his policy on Health, Safety and Environment and assign clear and achievable goals to his personnel during the **contract**.

CONTRACTOR may assign different goals for the different **construction and installation sites** if any.

HSE policy and goals shall be widely displayed around the site, including onboard support vessels.

4.4 Organisation and responsibilities

For each site CONTRACTOR shall describe through an organisation chart the general site organisation and the HSE organisation highlighting the functional and operational links.

CONTRACTOR shall appoint a site management representative who shall have responsibility, authority and accountability for co-ordinating implementation of the HSE policy and associated measures to protect the health and safety of people and the protection of the environment and assets. CONTRACTOR shall specify responsibilities in HSE matters of senior management, middle management (superintendents, supervisors, team leaders, HSE advisors, etc.) and workforce.

CONTRACTOR shall also specify responsibilities of subcontractors, VENDORS and visitors.

4.5 Training

Training and in particular training in HSE matters is an integral part of the job performance.

CONTRACTOR shall detail the HSE training programme for all **employees** including managers, superintendents, supervisors, team leaders, specialists, labours, new **employees** and subcontractors **employees**.

CONTRACTOR shall emphasize the training programme for personnel involved in HSE-critical activities such as crane drivers and operators, riggers, truck drivers, bus drivers, fire and emergency team members, electricians, scaffolders and medics/first aiders.

The HSE training programme shall include an induction course specific to the site which duration and content shall be adapted to each group of **employees**.

Permanent COMPANY personnel and all visitors shall undergo a minimum HSE induction course (see § 4.19.1).

Any **employee** working offshore shall get an Offshore Basic Safety Training. According to his position every **employee** onboard a vessel shall be trained as a minimum according to IMO requirements.

4.6 Medical fitness

Each **employee** shall undergo a medical examination on a yearly basis as a minimum. In hard environmental conditions or when local medical assistance is weak or remote from the working site, the medical examination period shall be shortened.

For new **employees** a medical examination shall be compulsory before starting job on site.

An **employee**, who has been away from work more than one week due to injury or more than three weeks due to illness, shall undergo a new medical examination prior to return to work.

CONTRACTOR shall submit upon request to COMPANY any medical certificate signed by a Physician (Doctor MD graduated) and mentioning "fit to work".

Particular attention shall be paid to medical fitness of catering personnel, crane and forklift drivers and operators, trucks and bus drivers and those with emergency duties e.g. fire teams.

In warm climate countries, CONTRACTOR shall take appropriate measures to prevent **employees** from heat related illnesses.

All **employees** shall be vaccinated in accordance with the latest vaccination requirements and health advice from the World Health Organisation.

4.7 Working rhythm

Working time shall be in accordance with local law and regulation. Daily overtimes are only used for short period.

CONTRACTOR shall grant a reasonable rest time to its personnel on daily, weekly and yearly basis.

Working time shall be adapted throughout the year to specific climatic conditions.

4.8 Risk assessment

CONTRACTOR shall develop and maintain procedures to identify the hazards and their effects which may affect the progress of the work or arise from its activities.

Risk identification and assessment techniques shall be used in conjunction with the judgement of experienced personnel to implement risk reduction measures to prevent **incidents** and mitigate consequences of such **incidents**.

Where several methods, processes or material may be used for the performance of a task the safest one shall be selected.

For activities identified with major potential hazards, Job Safety Analysis or equivalent methods of risk assessment shall be performed at supervisor level in conjunction with the HSE Department.

Simultaneous activities shall be strictly monitored on a day-to-day basis. Where applicable CONTRACTOR shall co-ordinate its activities with COMPANY and/or third parties. Co-ordination meetings shall be organised on a regular basis. (see § 4.19.3).

4.9 Risk mitigation

4.9.1 Work at height

Precautions shall be taken to prevent falls from any height where injury might result.

CONTRACTOR shall provide safe fixed (scaffolds) or mobile (rolling or suspended scaffolds or cradles) working platforms for access to a working location at height. Safe access to scaffolding shall be provided for working and also for emergency purposes.

Scaffolding shall be constructed and used according to international standards and MANUFACTURER's instructions. Scaffolds shall be constructed, modified and dismantled by qualified personnel.

Working platforms and their accesses shall be inspected and approved by a certified competent person (inspector):

- Before first use
- After any alteration
- After a reasonable period if no alteration occurred.

Dated and signed green tags shall be displayed at every platform access by inspector once the platform has been checked satisfactorily. Otherwise and, in particular during platform erection and dismantling, red tags and/or warning tags shall be displayed.

Where it is not practicable to provide safe working platform for any reasons, falls shall be prevented by the provision and use of safety harnesses equipped with 2 lanyards. Safety belts shall be banned in favour of safety harnesses. Safety harnesses are compulsory if there is a risk to fall more than 2 meters.

Safety nets shall be used to protect people working or walking below from falling objects (tools or debris), or alternatively the access to a zone below a working area at height shall be banned with physical barriers.

Excepted where not available in the country where activities take place, power operated mobile work platforms shall have priority over cradles lifted by crane. Work at height with personnel basket shall be strictly limited (short time work or checking job only). In these cases, lifting appliances such as cranes shall be of personnel-certified type. For onshore works personnel transfers from power operated mobile work platform or from cradle lifted by crane are forbidden.

In any case the construction or installation procedures shall give priority to working at ground level.

Soft baskets are exclusively dedicated to offshore transfer of personnel and their luggage. They shall come from SUPPLIERS specialised in the manufacture of such equipment.

4.9.2 Hazardous material

4.9.2.1 General

CONTRACTOR shall identify all hazardous materials and collect health and safety information such as Material Safety Data Sheet (MSDS) from the SUPPLIERS.

MSDS shall be displayed in storehouses and filed as a minimum in the HSE Department and the site clinic if available.

In order to make sure that workers using hazardous material are well informed of hazards, CONTRACTOR shall implement a procedure to deliver them with the instructions for use and required PPE.

Storehouses for hazardous material shall be clearly identified, labelled with adequate warning signs and appropriate fire fighting equipment shall be available in the immediate vicinity.

Storehouses for paints and thinners shall be equipped with an adequate ventilation system.

If required by the MSDS, emergency showers and/or eye wash stations shall be provided in the vicinity of the storehouses and working areas where the hazardous materials are used.

4.9.2.2 Gas cylinder/Gas supply

CONTRACTOR shall pay particular attention to the storage, the handling and the use gas cylinders.

When in use gas cylinders shall be secured in trolleys or baskets or secured to a firm support with ropes, chains or clamps.

When in storage areas, tags shall be attached to cylinders to identify their state (full or empty).

To prevent any misunderstanding, gas cylinders shall be clearly labelled with colour code according to international or national regulations or preferably with the name of gas itself in both English and local languages.

When gases are supplied through piping networks and distribution manifolds, outlets of the manifold shall be coloured as per a gas colour identification system. Colour of hoses shall be preferably in accordance with this system.

Hose shall be secured with machine crimped clips or equivalent. Unless equipped with a torque restriction system, standard worm drive clips (Jubilee clips) are not allowed.

Hoses between distribution manifold and area of use shall be protected from breaking or crushing when on ground or preferably be routed off the ground.

4.9.2.3 Petrol station

Diesel and petrol are hazardous goods and therefore shall be stored and supplied to users with precaution. Facilities shall be kept clean and in good conditions. Gun for filling shall be equipped with anti-overflow system.

Adequate warning signs shall be displayed and fire fighting equipment shall be available in the immediate vicinity.

Storage and filling facilities shall be equipped to collect any leak which could affect the environment.

4.9.2.4 X-ray and gamma ray equipment

When not in use the X-ray and gamma ray equipment shall be securely stored and adequate warning shall be displayed.

4.9.2.5 Asbestos

The use of material containing asbestos is forbidden for the construction of new facilities.

Providing that asbestos inventory and dust measurement are performed every three years by an agreed COMPANY, the use of CONTRACTOR's equipment or support vessels containing asbestos is allowed if the asbestos dust measured in the atmosphere is lower than 5 fibres/litre.

Where CONTRACTOR's personnel works on COMPANY's existing facilities in immediate contact or in the vicinity of asbestos in any form, works shall be performed as per European Directive ref 83/477.

Before every task, CONTRACTOR shall issue adequate working procedures for COMPANY's approval. If necessary procedures shall also cover disposal, scrapping and treatment process.

People involved in works in immediate contact or in the vicinity asbestos or product made with asbestos shall be informed of asbestos hazards, familiarized with specific protection equipment and shall undergo every six months as a minimum an adapted medical examination.

In case items made of asbestos are few in number (about 20 to 30) **and** asbestos is not free and friable (rubber-asbestos gasket, asbestos cladding sheets, etc.) CONTRACTOR is allowed to perform works with his own teams as per European Directive ref 83/477.

Asbestos removal or neutralizing works shall be performed by agreed companies.

During the performance of the works and after disposal of asbestos the working area shall be cleaned with water in order to avoid asbestos dust flying in the atmosphere. Adequate tools shall be used to avoid and reduce air turbulences which may cause flying dust.

In order to avoid further pollution and contamination, the disposal of asbestos shall be carefully organised, in dustproof bags or containers.

4.9.3 Personal Protective Equipment (PPE)

All personnel shall wear PPE to work on site.

Minimum PPE shall be helmet, safety shoes, standard gloves, safety glasses and coveralls with long sleeves for all personnel including subcontractor personnel and visitors.

As appropriate, following PPE shall also be worn: goggles, full face shield, welding mask, fall protection, specific coveralls, ear protection, protective gloves suitable for the work, respiratory protection, life vests, work vests and any other protection that CONTRACTOR may require for its activities.

Welders shall be provided with helmet especially fitted to accommodate the welding mask.

Protective clothing suitable to weather conditions are also required if relevant.

CONTRACTOR shall provide adequate PPE to all personnel working on site. Minimum PPE as defined above shall be provided to visitors and VENDORS.

If relevant, PPE exemption areas shall be clearly identified on work sites by means of signs, ground stripes, fences, etc. PPE exemption areas shall also be identified on the site general layout drawing which shall be posted at work sites.

4.9.4 Lifting equipment

Lifting equipment include lifting appliances and lifting gear.

4.9.4.1 Lifting appliances

Lifting appliances include cranes, overhead cranes, lifting frames, forklift trucks, power operated mobile work platforms, lifts, cradles, sheave blocks, winches, powered hoists, manual hoists, lever hoists, rope hoists, beam trolleys, beam clamps and similar equipment.

4.9.4.2 Lifting gear

Lifting gear include wire rope slings, man-made fibre slings, chain slings, spreader bars, lifting clamps, hooks and fittings, swivels, shackles, eyebolts, rigging screws (turnbuckles), wedge sockets, plate clamps, personnel basket, fall arrest devices and similar equipment.

4.9.4.3 Inspection

All lifting equipment shall be provided with VENDOR certificate and subject to periodic thorough examination and testing carried out by competent persons. Competent persons shall be preferably from independent inspection organisation.

Specified intervals for thorough examination shall be:

- Maximum 6 months for lifting equipment used to lift personnel and all lifting gears
- Maximum 12 months for lifting appliances and other lifting equipment.

Lifting gears shall be preferably colour coded. A new colour shall be used after every thorough examination.

Lifting equipment shall also be inspected to ensure continuous safety by:

- The HSE Department at suitable intervals between thorough examination
- The user before any use.

All lifting equipment shall receive an identification tag number for follow-up.

Dates and results of examinations and inspections shall be recorded in a log book available on the working site. VENDOR certificate shall be also available on the working site.

When a lifting appliance need maintenance it shall be put on quarantine and locked with clear written instructions.

When a lifting gear is declared unsafe further to an inspection, it shall be destroyed and thrown away.

4.9.4.4 Miscellaneous

The SWL (Safe Working Load) shall be indicated on lifting equipment.

A flashing light is required on cranes and forklift trucks when moving. All vehicles (excluding cars) shall have an automatic reversing alarm.

Overhead cranes shall be equipped with an alarm which can be activated if necessary by the crane driver when moving.

4.9.4.5 Personnel baskets

Design of personnel baskets shall be supported by a comprehensive calculation note. Their fabrication shall be only undertaken by qualified welders. Personnel baskets shall be certified by an independent certification COMPANY.

They shall be checked and inspected by a competent person prior any use.

4.9.4.6 Lifting operations

Suitable guide lines or tag lines operated by air tugger winches shall always be used to stabilise loads.

Outriggers shall always be extended on stationary lifts when cranes are fitted with such equipment.

Unless planned in specific lifting procedure, only one person shall communicate by radio with the operator and/or provide hand signals to the operator.

Heavy lifting and hazardous lifting operations or non-routine lifting operations for the site shall be supported by a detailed working procedure which shall include a risk assessment.

The crane operator shall always be at the controls while men are suspended in a personnel basket. A safety sling shall be secured between the basket and the crane hook in addition to the main lifting sling.

4.9.4.7 Operators

All crane, overhead crane and forklift truck operators shall undergo an annual medical fitness test focussing on hearing and vision ability.

All operators shall receive an adequate training specific to the appliance they use with yearly refresher. It shall be the same in case:

- They change for another appliance.
- The appliance which they are dedicated to is modified.
- The working conditions have been significantly modified (i.e. from onshore yard to offshore but with the same appliance).

In any case an authorisation to work shall be delivered by the CONTRACTOR site manager to each operator working on site, even if the lifting operations are subcontracted.

Where requested all operators shall be certified as per local regulations.

4.9.5 Manual handling

All **employees** shall receive adequate training on manual handling behaviour and techniques to prevent them from occupational illness.

4.9.6 Permit To Work

A Permit To Work system is used to ensure that hazardous works are performed safely.

CONTRACTOR shall define works and situations which require Permit To Work procedure,. Where works are performed on a COMPANY Site, the COMPANY Work Permit procedure shall apply.

Permit To Work shall be supported by Job Safety Analysis and as a minimum it is required for excavations, confined space entry, hot work at defined hazardous locations, heavy lifting and hazardous lifting operations or non-routine lifting operations for the site work on electrical systems, pre and post weld heat treatment carried out with high voltage electrical coils, X-ray or gamma-ray activities if not conducted in a permanent shielded enclosure, pressure testing activities if not conducted in an permanent dedicated area.

As a minimum, a copy of each Permit to Work shall be posted in the concerned working area.

After completion of the work, Permits To Work shall be recorded in the HSE Department.

4.9.7 Electrical safety

Live electrical equipment shall be tagged and locked out prior to work is being carried out. Work on electrical systems shall be subject to Permit To Work and Isolation Procedure.

Electrical equipment shall be suitably grounded and in good condition including cables and plugs.

Fixed electrical distribution cubicles shall be equipped with 300 mA differential circuit breakers and 30 mA differential circuit breakers if there is any possibility of water on ground.

Mobile electrical distribution cubicles shall be equipped with 30 mV differential circuit breakers.

All electrical portable tools shall be fitted with dead-man switches.

Outside low voltage (24 or 48 volts) portable tools shall preferably be used.

Only certified persons¹ shall be allowed to enter electrical rooms or electrical cabinets. Electrical Rescue kits shall be provided in Switch Gear/High Voltage rooms once the electrical equipment is live.

4.9.8 X-ray and gamma ray

Wherever possible, X-ray and gamma ray activities shall be carried out in a permanent suitable shielded enclosure.

When it is not possible to do this way, appropriate shielding shall be provided and a barrier erected around the area concerned at a safe distance from the exposed source. Prominent warning signs and flashing lamps shall be sited along this barrier.

X-ray and gamma ray equipment shall only be operated by classified persons subject to specific medical surveillance.

When carried out in a temporary shielding area, X-ray and gamma ray works shall be subject to Permit To Work procedure.

4.9.9 Hydrotesting

Wherever possible, pressure testing shall be carried out in a permanent dedicated area. Concrete walls with inspection windows shall shelter such area.

When it is not possible to do this way, pressure testing shall be supported by a Job Safety Analysis and controlled under the Permit To Work procedure. As a minimum barriers and warning signs shall be erected at a safe distance around the concerned area.

In any case warning tags shall be used to identify lines under test.

¹ As per French safety booklet issued by UTE (Union Technique de l'Electricité) referenced C-18510 (or equivalent)

Pneumatic tests and very high-pressure hydro-testing (above 5000 psig or 350 bar) shall be only conducted in sheltered area.

4.9.10 Blasting and painting

Silica sand is not allowed for grit blasting.

Blasting and painting areas shall have adequate warning signs posted.

Wherever possible blasting and painting activities shall be conducted indoors with suitable ventilation.

Grit blasting personnel shall be supplied with dust, oil and water free breathing air. The CO and CO₂ content shall be as per French standard [NF EN 12021](#) (15 ppm maximum for CO and 500 ppm maximum for CO₂). Compressor air intake shall be adequately positioned in order to avoid aspiration of exhaust fumes.

Blasting nozzles shall be equipped with dead-man switches and grounded against static electric discharge either by a direct connection to the piece of work or through an earth connection. Offshore the grounding may be performed by the armouring of the hose to the blasting pot which is grounded to the platform.

Hose couplings shall be secured to prevent them from whipping if they should work loose.

4.9.11 Excavation

Excavation works on COMPANY site shall be performed as per COMPANY general specifications referenced [GS EP CIV 101](#).

Excavation work shall be subject to Permit To Work procedure. Existing underground installations shall be marked on site prior to any excavation. Effort shall be made to determine if there are existing underground facilities installations.

Excavations two meters deep or more shall be properly fenced. Proper access into excavations one meter deep or more such as ladders or stairs shall be provided.

In excavations which **employees** are required to enter excavated or other material shall be effectively stored and retained at least 1 meter from the edge of the excavation. Depending on soil composition and excavation depth, walls and faces of such excavations shall have an **employee** protection system. Where excavation is deeper than 1.3 m and width equal or longer than two third of the depth a shielding or propping shall be installed.

4.9.12 Marine operations

In addition of HSE aspect elsewhere mentioned in the present specification, marine operations shall be performed as per COMPANY general specifications referenced [GS EP STR 401](#) to [GS EP STR 404](#) for structures, [GS EP PLR 401](#) for sea-lines, [GS EP PLR 408](#) for cables, umbilicals and flexible lines and [GS EP STR 301](#) as relevant for positioning. These operations and involved marine spreads shall be also as per applicable local and international regulations.

Support vessel superintendent shall have 10 years experience in the area of oil and gas offshore industry. For supervisors, field engineers and deck foremen a minimum of 5 years experience is requested.

Where transfer of personnel is performed by speed-boat, vessels shall be equipped with V-shape boat landing as per [GS EP STR 901](#) or other means approved by COMPANY allowing a safe transfer. Whatever is the transfer system a risk analysis shall be performed and training shall be delivered to all concerned personnel including visitors.

For the transfer of personnel between large vessels or between large vessels and fix platforms a gangway shall be used. Depending on the site conditions (sea-state, arrangement) other safe means may be proposed upon to COMPANY approval.

Whatever is the transfer means and during work overboard all personnel shall wear a life jacket.

On **COMPANY Site** vessels movement shall be co-ordinated with COMPANY representative.

4.9.13 Diving and underwater operations

In addition of HSE aspect elsewhere mentioned in the present specification, diving activities and positioning shall be performed as per COMPANY general specification referenced **GS EP LSO 410** and **GS EP STR 301**.

In addition to the required certification of personnel, the minimum experience in oil and gas diving activities for divers, diving supervisors and superintendents is:

- Diving superintendent: ten years diving experience with five years at supervisory level
- Diving Supervisor: seven years diving experience with two years at supervisory level
- Assistant Supervisor: five years diving experience with one year at supervisory level
- Diver: two years diving experience.

Diving support vessel superintendent shall have ten years experience in oil and gas offshore activities, including five years at supervisory level on such type of vessel.

When diving operations are sub-contracted, a special attention shall be paid to the selection of the diving COMPANY. The selected diving sub-contractor shall have a minimum of ten years experience in diving works for oil and gas offshore industry.

Underwater opening of a closed enclosure (i.e.: tank, pipe, flexible, bracing or structure member) shall be supported by a Job safety Analysis and a Permit To work.

Operation with ROV shall be performed as per COMPANY general specification referenced **GS EP SPS 001**.

4.9.14 Ergonomic

In order to avoid musculo-skeletal inflammatory diseases attention shall be paid to tasks with repetitive movement or uneasy long time posture and corrective measures shall be taken. This includes computer workstations.

4.9.15 Noise

The level of noise shall be limited to prevent hearing damage and permit speech and communication on site.

Whenever practicable, the noise level shall be below 85 dB(A) in normal situation. In areas where the noise level is above 85 dB(A), warning signs shall be posted and ear protection shall be worn.

4.9.16 Lighting

Adequate lighting shall be provided to all working areas.

Portable lighting equipment shall be fitted with an approved plug.

Only authorized personnel shall undertake repairs to lighting equipment.

4.9.17 Housekeeping and cleanliness

Aisles, walkways, corridors and passageways shall be clearly marked and kept free from hazardous obstructions.

CONTRACTOR shall allocate adequate time and resources to maintain an acceptable level of housekeeping and cleanliness in all working areas.

Particular attention shall be paid to housekeeping and cleanliness at height to prevent falls of materials on persons working below. Wherever possible safety nets shall be used (refer to § 4.8.1).

4.9.18 Toilet facilities

Toilets facilities shall be provided on working site in sufficient number and shall be regularly cleaned and maintained.

There shall be no discharge of human waste direct to the environment. Septic tank shall be the minimum requirement. Care shall be taken so as not to pollute the water supply used by others such as ground water.

4.9.19 Drinkable water

Drinkable water shall be provided in several locations and in sufficient quantity on **construction and installation sites**.

Quality of supplied water shall be regularly tested by competent persons i.e. medical personnel.

Water shall be provided either with drinking fountains or mineral water bottles.

4.10 Management of change

In order to avoid adverse HSE consequences, CONTRACTOR shall maintain a procedure for the management of change in people, process, procedures, both for temporary or permanent change.

4.11 Road traffic

Road traffic on the **construction site** shall be strictly limited to vehicles dedicated to work.

Private cars and vehicles shall not be parked inside the **construction site**.

Legal traffic safety rules shall be strictly observed with a speed limit adapted to the site organisation. COMPANY and CONTRACTOR shall define jointly a driving policy for the site. Joint random speed checks are to be implemented and any offence shall be punished.

Procedures for selection, use and maintenance of transport means for personnel and hazardous material shall be issued.

Drivers specifically assigned to personnel or dangerous goods transport shall be properly selected on competence and medical fitness and specifically trained. They shall undergo a specific medical examination every year and receive a defensive driving training with refresher course every four years.

4.12 Subcontractors

CONTRACTOR shall be responsible for the safety of its subcontractors while working on the site.

CONTRACTOR shall have the same safety requirements for subcontractors personnel than for its own personnel.

CONTRACTOR shall assess HSE performance and organisation of subcontractors prior to contracts award.

CONTRACTOR shall also assess HSE performances of subcontractors all along the work and at the end of the work.

4.13 Emergency preparedness

For offshore activities, in addition of the requirement below, CONTRACTOR shall fulfil International Marine Organisation (IMO) requirements and corresponding certificates shall be available onboard each vessel.

4.13.1 Procedures

CONTRACTOR shall develop emergency response procedures for:

- Medical evacuation
- Fire and explosion
- Release of flammable and/or toxic gases
- Oil spill and hazardous material release
- Radiation leak or loss of radioactive material or explosive material
- Missing person and man overboard
- Security breaches and sabotage

On offshore site, where people work on several different vessels or fix platforms a "T" card or similar system shall be implemented.

Depending on the extent of each site, CONTRACTOR shall set up one or several muster points for personnel evacuation.

Where works are performed on a COMPANY's site, the CONTRACTOR emergency procedures shall be co-ordinated with the existing COMPANY organisation.

4.13.2 Personnel

Personnel in adequate number at responsibility level shall be nominated as emergency response team available during working hours. In case of work at night, an emergency response team shall also be nominated.

According to the size of the site a separate fire fighting team can be nominated.

Personnel in adequate quantity shall be trained as first aid officer. As a minimum each working team shall have a first aid officer.

First aid officers shall be easily identifiable on site from other personnel.

All personnel shall be given basic first aid information.

4.13.3 Equipment and facilities

First aid kits in adequate number shall be available in superintendent/supervisor site offices. Such kits shall be regularly checked and supplied by a competent person i.e. medical personnel

CONTRACTOR shall have adequate medical facilities on site. These facilities and their personnel shall match the potential risks, the number of persons on site, the logistic means and the medical additional facilities available in the surrounding area. They shall be equipped for emergency medical treatment.

4.13.4 Communications means

Reliable communication means for emergency purpose such as phone or radio shall be distributed in sufficient number on the site.

Alarm signals and sirens shall be available and tested regularly.

4.13.5 Fire fighting

Fire fighting equipment shall be available in adequate quantity in areas subject to fire break out.

Portable fire extinguishers shall be conspicuously located and kept easily visible and accessible.

All **employees** shall be trained in use of fire extinguishers available on site.

4.13.6 Information

Notice boards shall be placed at pertinent locations to highlight emergency measures in place.

These boards will show as a minimum:

- Facility layouts with escape routes, muster locations, location of emergency equipment
- Emergency response team names and emergency telephone and/or radio numbers
- Material Safety Data Sheets for dangerous chemical products being used on site
- List of first aid officers with their location on site.

4.13.7 Exercise and drill

Regular drills shall be carried out to ensure emergency response teams are fully accustomed to actions to be taken should an emergency occur.

Regular exercise shall be organised with all personnel on site to ensure muster locations and emergency instructions are fully known.

4.14 Security

Access to site shall be strictly controlled on a 24 hours a day basis. Each access to site shall be equipped with a closing gate. The gate shall be only opened either by a swipe card or by a security guard. Any swipe card shall have the photograph of the holder on.

The list of personnel present on site shall be updated on a daily basis and dispatch to HSE Department and Security Department.

Offices and filling cabinets shall be fitted with locks and keys.

Computers shall be provided with access password and anti-virus software.

Photography of COMPANY construction works by persons from outside COMPANY shall be subject to COMPANY Representative agreement.

4.15 Alcohol, drugs policy

No alcoholic beverages or persons under the influence of alcohol shall be allowed on site, including in accommodation.

No drugs or persons under the influence of drugs shall be allowed on site including in living quarter.

COMPANY is entitled to request randomised alcohol or drug abuse checking. This mainly concerns lifting appliance operators, civil work operators, bus and car drivers but such checking can be extended to all personnel upon COMPANY request.

The management of site shall ensure that personnel are made aware of, and fully comply with, these prohibitions.

4.16 Smoking policy

Smoking areas shall be clearly defined and identified on sites.

In order to avoid passive smoking, smoking shall be only allowed in dedicated rooms equipped with an independent air conditioning system.

Except for dedicated areas, smoking is forbidden at COMPANY facilities.

The Site Management shall ensure that personnel comply with the no smoking obligation in the no-smoking areas.

4.17 Accommodation and catering

Accommodation provided to personnel shall be of a good standard and equipped with safety features. Onshore camps shall be in accordance with **GS EP CIV 403**.

Catering service shall be of a good level and adapted to customs of people working on the **construction or installation site**. Catering personnel shall be certified and shall undergo regular medical examination and regular sanitary inspection.

Kitchen, freezers, refrigerators and restaurant shall be regularly inspected by competent persons. For freezers and refrigerators a special attention shall be paid to the control of temperature.

4.18 Environment

Wastes shall be managed according to local regulations. On offshore sites International Marine Organisation (IMO) requirement shall apply.

Dangerous materials shall be properly identified, stored and handled in a clean and safe way before being disposed of.

Particular attention shall be paid to oily waste which shall not be disposed off through sewage system.

4.19 Communication and meetings

4.19.1 Induction course

Upon first arrival at site, each individual including visitor shall attend an HSE induction program, which shall also cover environmental issues, health issues and human relationships.

The content of the HSE induction program shall be adapted to the category of personnel (i.e.: permanent workers, visitors, etc.).

The CONTRACTOR shall take care that the induction course is fully understood by the personnel. In such a way, the induction course shall be available in several languages suited to the personnel. It is highly recommended that a comprehension test is carried at the end of the session.

Individuals shall be provided with a copy of the HSE booklet, which shall complement information provided verbally. Personnel shall attend this induction course on the first day on site.

4.19.2 Pre-shift meeting

Prior to commencement of the day activities or a new task, a pre-shift meeting shall be conducted by front-line supervisors. In order to highlight the hazards, topics shall be relevant to the forthcoming work. These talks shall be supported by HSE advisors and the training Department. Daily safety talks date, subject and attendance shall be recorded.

When operations are performed on a 24 h basis, shift hand-over meetings shall be organised or included in the pre-shift meetings.

4.19.3 Regular meetings

Communication between management and **employees** shall be encouraged through regular meetings.

As a minimum a HSE Committee meeting conducted by the Site Manager shall be organised on a monthly basis. The purpose of this meeting is to ensure upper management involvement in safety, health and environmental programme and to check periodically the implementation progress of the improvement plan. The COMPANY Representative shall be invited to participate to the HSE Committee meeting.

A HSE tour (walk-around) conducted by the CONTRACTOR Site Manager and a representative of the CONTRACTOR HSE Department shall be organised on a weekly or a fortnight basis. Supervisors and Subcontractors Managers of concerned areas shall be part of the HSE tour. The COMPANY representative shall be invited to participate to the HSE tour.

Co-ordination meetings between working teams and disciplines working in the same area shall be organised on a regular basis and when necessary.

HSE talks shall be organised by line management with HSE department assistance. Each **employee** shall at least attend one HSE talk every week.

All HSE meetings shall be minuted and registered in the HSE Department.

4.19.4 Work performed on COMPANY SITE

Where works are performed on a COMPANY Site, co-ordination and information meetings shall be organised as follows. These meetings are called and chaired by COMPANY. CONTRACTOR shall provide all information allowing a good understanding of the planned operations.

4.19.4.1 Kick off Meeting

The purpose of the kick off meeting is to:

- Present and comment upon the operations program

- Detail the means and resources for implementing the operations
- Identify and analyze hazards on a first approach and then to decide or not a formal Operational Risk Analysis
- Define the list of the compensatory and safety measures
- Define the organization, the responsibilities and the role of all the parties involved.

Such meetings shall be organised several weeks before beginning of operations and before mobilisation on site.

4.19.4.2 Pre-job meeting

The Pre-Job Meeting is held a few hours or days before the operation starts, on the work site and aims at the following objectives:

- To inform all the site involved entities about the operations from start to finish
- To remind roles and responsibilities of all the involved entities
- To remind to and comment on with all the site involved entities the safety and specific measures enforced during implementation of works
- To demonstrate on the site, the safety means and measures.

4.19.4.3 Daily Permit To Work Meeting

All involved parties shall attend this daily meeting.

The purpose of this meeting is to:

- Co-ordinate the works being prepared or in progress
- Finalise and validate the COMPANY Permits To Work (cf. § 4.9.6)
- Authorise routine operations
- Renew or cancel current Permit To Works.

4.20 Inspection

HSE inspections of the **construction and installation site** and/or support vessels shall be conducted regularly by the CONTRACTOR. The inspector shall follow check lists dedicated to the equipment to be inspected.

Weekly hygiene inspection shall be carried out by competent persons in toilet, changing areas, accommodation, kitchen, restaurant and laundry.

4.21 Audit

4.21.1 Project audit

Regular HSE audits shall be conducted by the CONTRACTOR HSE Department. The audit schedule program shall be provided to COMPANY at the beginning of activities on site.

Objectives of these audits shall be:

- Compliance with the Site HSE Plan

- Implementation of safety practices
- Identification of areas for improvement.

4.21.2 Management audit

For construction work lasting more than 12 months, an HSE audit shall be conducted at management level and shall involve Corporate Management.

Objectives of this audit shall be:

- Compliance with relevant legal requirements
- Compliance with CONTRACTOR HSE policy and objectives
- Identification of possible changes in HSE policy.

4.22 Incident/Anomaly investigation and reporting

4.22.1 Definitions

Incidents include:

- Accident which involves occupational injuries or fatalities
- Near miss **incident**: any event which had the potential to cause injury to personnel and/or damage to the environment or property but which was avoided by circumstances
- Damage to the environment (ED: Environmental Damage)
- Material loss (ML: Material loss).

Anomalies are:

- Unsafe acts: unsafe acts refer to human behaviour
- Unsafe conditions: unsafe conditions refer to human behaviour, equipment or procedures.

4.22.2 Case management

Incidents involving personnel shall be classified in:

- Fatality
- Lost Time Injury (LTI)
- Restricted Work Day Case (RWDC)
- Medical Treatment Case (MTC)
- First Aid Case (FAC)
- Total recordable incident (TRI = Fatalities + LTI + RWDC + MTC).

4.22.3 Incident reporting

Any **incident** shall be reported to the CONTRACTOR HSE Department.

Reporting of anomalies is strongly recommended to prevent **incident** occurrence. CONTRACTOR shall encourage **employees** to report anomalies.

4.22.4 Incident investigation

All **incidents** involving one or several Fatalities, one or several Lost Time Injuries (LTI) and any other **incident** which have the potential to result in one or several fatalities or several Lost Time Injuries (LTI) shall be investigated in order to determine actions to be taken to prevent re-occurrence.

Investigation shall be followed by a formal analysis using the cause tree analysis or a similar method. Corrective actions shall be defined and implemented to prevent recurrence. The implementation shall be regularly monitored and closeout shall be registered.

4.22.5 Statistics

CONTRACTOR shall issue Incident/Anomaly statistics on a periodic basis.

Following statistics shall be reported and made available any time:

- Man hours worked
- Gross figures: fatality, LTI, RWDC, MTC, TRI, FAC, Near Miss, **incident** with high potential severity, Material loss, Damage to the environment, anomaly
- Lost Time Injury Frequency - LTIF (LTI per 1 million man hours worked)
- Total recordable incident rate - TRIR (TRI per 1 million man hours worked)
- Severity Rate (number of lost workdays per lost time injury)
- Near Miss Frequency (near misses per 1 million hours worked)

4.22.6 Reporting to COMPANY

Any **incident** shall be reported COMPANY. **Incidents** involving fatality or LTI or **Incident** which have the potential to result in one or several fatalities or several Lost Time Injuries (LTI) shall be reported on a day-to-day basis.

A preliminary report shall be provided within the following 24 hours of the **Incident**.

The investigation report including the cause tree analysis (or equivalent) shall be provided within the following 7 days of the **Incident**.

Safety statistics shall be reported to COMPANY on a monthly basis as a minimum.

4.23 Improvement plan

In order to improve its performance towards HSE, CONTRACTOR shall establish an HSE improvement plan covering at least the following:

- HSE performance compared to objectives
- Corrective actions "to do" and "done" as defined by the following categories of HSE evaluations: risk assessments, drills, reviews, **incidents** and near misses analysis, audits, inspections and environmental monitoring
- Response to HSE comments from local inhabitants, authorities and COMPANY
- Up-grading of CONTRACTOR yard areas and facilities where problems are frequently encountered

The HSE improvement plan implementation shall be regularly assessed by CONTRACTOR, as a minimum monthly during the Safety Committee meeting (cf. § 4.19.3).



Exploration & Production

General Specification

Date: 10/2008

GS EP PJC 401

Rev: 05

CONTRACTOR shall review his HSE improvement plan contents with COMPANY periodically.