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	<b>Health, Safety and Environment (HSE) Management Manual</b>	
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Section: <b>B</b>	Title: <b>Introduction</b>	

This manual provides an overview of the framework employed by HYDRAFORCE GROUP in its health safety and welfare management as well as environmental preservation program. Described meticulously in detail are the concepts, principles, organizational structure, processes and controls being implemented and maintained to ensure that projects are executed in strict compliance with the contract safety/environmental requirements and the U.A.E. law. This manual specifically aims to establish a common criterion for a consistent approach to health, safety and environment management that will form the basis to sharing ideas and resources throughout HYDRAFORCE GROUP, its customers and suppliers.

The requirements of this manual apply to all personnel and premises working under the control of HYDRAFORCE GROUP. As far as reasonably practicable, the same principles will be applied within premises and sites operated in conjunction with other entities or any other location where HYDRAFORCE GROUP is represented.

The detailed and updated Quality Manual (Doc. Ref. No.: QMM 01) will provide extensive information about company policy and strategy towards objectives and quality issues.

**Approval and Control**

This manual has been reviewed and agreed by the management and approved by the Managing Director.

<b>ABDUL RASHEED N. - Managing Director</b>
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The manual must not be copied, altered or conveyed to a third party without the Managing Director’s consent. Requests for clarifications, amendments or notice of discrepancies must be referred to the HSE Officer in the first instance.

Recipients of amended pages must ensure the pages are inserted into their copy of the manual and that the superseded pages are destroyed.

Holders of manuals marked "UNCONTROLLED" will not be updated with changes.

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Section <b>C</b>	Title: <b>Company Profile</b>
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Company Name	:	<b>HYDRAFORCE HYDRAULIC (LLC)</b> <b>HYDRAFORCE SERVICES (LLC)</b>
Address	:	P.O. Box 88277 , Dubai, U.A.E.
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Contact Names	:	MR. ABDUL RASHEED N.            Managing Director
	:	MR. HARIKUMAR C. N.            HSE In-Charge
	:	MS. KAREN                            QA Executive

Hydraforce Group of companies consists of HYDRAFORCE HYDRAULIC LLC and HYDRAFORCE SERVICES LLC.

Hydraforce Hydraulic LLC is an authorized stockiest and service dealer for branded hydraulic products from 1.BEIRI Hydraulics (Switzerland), 2.HYDROPACK, 3.Ningbo Hansheng (PRC), 4.HYDROTECHNICK, FILTERTECHNIK, including the full SCHROEDER range and FLOWTECHNIK (UK) and etc., providing pre-sales and post-sales activities related to their products and stock wide range of hydraulic products sourced from renowned suppliers apart from the above mentioned group of dealers.

Hydraforce Services LLC is a hydraulic service company dealing with suppliers and services of hydraulic equipment, tools and accessories based in Dubai, UAE. Its activities are briefly defined as follows, 1. Troubleshoot and repairs, 2. Equipment upgrade and retrofit, 3. Condition monitoring, 4. Engineer/Re-engineer, design, and manufacture of HPU's and SPM's of hydraulic systems.

Hydraforce Group establishes a well equipped Workshop in the Industrial Area and having highly skilled technicians and Engineers for their operation. Hydraforce Group is providing its extensive service / business not only within UAE but also to the countries like Saudi Arabia, Bahrain, Sultanate of Oman, Azerbaijan and Caspian Area etc.,

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Section <b>D</b>	Title: <b>Terminologies and Definitions</b>	

The terminology used in this manual have the following meanings unless indicated otherwise:

- a) **SAFE** : A situation is categorized as safe if its risks are known and judged to be acceptable.
  
- b) **INCIDENT & ACCIDENT** : An incident is an event or chain of events which has the potential of causing personal injury, damage to property or to the environment. An accident, on the other hand is an incident which has caused injury and/or damage; as such all accidents are incidents but not all incidents develop into accidents.
  
- c) **HAZARD** : An object, physical effect or condition with the potential of causing harm to people, property or environment.
  
- e) **RISK** : The likelihood that a specified undesirable event will occur due to the realization of a hazard.
  
- f) **HSE** : Health, Safety and Environment
  
- g) **PPE** : Personnel Protective Equipment
  
- h) Reference to Site Supervisor implies the immediate supervisor on site, the Engineer, the Foreman or the charge-hand as applicable in a given situation.

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Section <b>E</b>	Title: <b>Policy Statements</b>	

### **E.1 HEALTH SAFETY & WELFARE**

HYDRAFORCE GROUP acknowledges that high standards of health, safety and welfare are integral element of efficient business management. This key performance indicator is therefore central to our strategy for the well being of the company and its employees and critical to its general success. The company acknowledges health and safety as a management responsibility of equal importance to production, quality and finance. Health and safety will be actively pursued through continuous development of employee competence, the provision of expert advice and a zero-accident goal as the driving facets towards progressive improvements in the company's health and safety performance. It is espoused that:

- All relevant statutory requirements are observed and treated as the minimum standards to be applied to any work activity.
- Health, safety and welfare considerations are included in the company's business planning, Quality Policy and decision making thus ensuring a safe and healthy working environment.
- Adequate information, instruction, training and supervision is provided so that through the use of formal risk assessment and the communication of the control measures to be adopted to eliminate or reduce risk, individuals are made aware of the potential hazards they face as a consequence of their work.
- Plant, equipment and materials provided for work to be undertaken are fit for the purpose and adequately maintained so as to be free from unnecessary risk.

This manual will be reviewed and developed periodically to warrant that it remains effective and any necessary amendments will be communicated to all employees.

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## **E.2 ENVIRONMENT PRESERVATION**

HYDRAFORCE GROUP recognizes the need to ensure that it operates its business and carry out activities in a way that acknowledge its responsibilities to and for the environment. The company commits to pursue the best environmental practices and, in particular, affirms to:

- Ensure that adequate human and financial resources are made available to implement and maintain this environment policy and likewise include environmental considerations in its business planning and decision making.
- Comply with all applicable regulations and statutory requirements and where no regulations exist, set our own standards.
- Train all employees in environmental matters appropriate to their role.
- Conserve resources by the efficient consumption of materials, energy and fuel and by influencing designs and specifications which achieve optimum results without entailing excessive costs.
- Encourage all suppliers and customers to develop or share environmental policies in with the company's policies.
- Implement a waste minimization program, encourage recycling and continuously monitor/improve the company's environmental performance.
- Make environmental issues a part of the periodic business reports.

This manual will be reviewed and developed periodically to warrant that it remains effective and any necessary amendments will be communicated to all employees.

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Section <b>F</b>	Title: <b>Company HSE Objectives</b>	

HYDRAFORCE GROUP's commitment to protecting the environment and the health and safety of our employees and the communities we serve represents a critical part of the core values that guide our company. Our ultimate vision is for a zero-HSE incident in all our activities and to realize this, the following measures among others will be enforced:

- F.1** All employees will be trained and made aware of the company's HSE requirements and that of the project. The employees will participate in all mandatory courses provided by the client.
- F.2** HSE performance will be monitored throughout the project. The statistics will be reviewed and efforts made towards continuous improvement.
- F.3** All activities will be carried out using efficient and safe work practices, clear plans, methods of work and safety guidelines.
- F.4** Hazard identification and risk assessment will be carried out on a regular basis and necessary control measures will be implemented. This will be done first on a project basis and once the system matures, all activities will be subject to risk assessment.
- F.5** All accidents and incidents will be investigated and reported to the company management, client and, whenever necessary, to the government authorities.
- F.6** The Company encourages all ideas and suggestions towards improving HSE performance. HSE Suggestion Form may be utilized for this purpose.
- F.7** Strong focus on incremental improvements on a continuous basis will be consistently pursued.
- F.8** All necessary resources and supports will be extended by the management.

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<i>Section</i>	<i>Title:</i>
<b>G</b>	<b>Rules and Regulations/Reference Documents</b>

- G.1** This HSE Manual will be the basic guideline for health, safety and environmental risk administration throughout the company. Specific procedures will be added as the system matures.
- G.2** Every employee is required to strictly adhere to the company's HSE policy and understand his role in fulfilling the HSE policy.
- G.3** All employees are to take reasonable precaution to prevent injury to himself or others and to cooperate fully to enable management to fulfill their legal obligations.
- G.4** Compliance with the company rules and regulations will be monitored as follows:
- during routine/planned inspections
  - during safety and health inspection tours
  - during audits of the system
  - during accident/incident investigation
- G.5** Any employee failing to comply with the company rules and regulations will be subjected to disciplinary action as decided by management.
- G.6** Applicable sections of the following legal and binding documents will be adhered to:
- Ministry of Labor & Social Affairs-Federal Law NO. 8: 1980
  - Ministry of Labor & Social Affairs-Federal Law NO. 32: 1982
  - Ministry of Labor & Social Affairs-Federal Law NO. 3: 1987
  - Ministry of Labor & Social Affairs-Federal Labor Act: 1991

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Section <b>H</b>	Title: <b>Safety Organization and Responsibilities</b>	

- H.1** The typical organization for management of Health, Safety and Environment issues is attached. Specific HSE responsibilities in projects are documented in the HSE plans developed for individual projects.
- H.2** The responsibilities of key personnel towards attainment of the HSE objectives are:
- H.2.1** The HSE Officer is responsible for all matters relating to Health, Safety and Environment within the company. He delegates this responsibility to the Engineers whose are overall responsible for establishing, coordinating, monitoring and maintaining the Health, Safety and Environment activities for all company projects.
- H.2.2** The Engineers are responsible for ensuring HSE documentations are valid, necessary procedures are developed, HSE audits are conducted and advise management of improvements required for effectiveness.
- H.2.3** Each Engineer is responsible for ensuring that the policy is effective and fully understood by all employees on his site. He is also overall responsible for ensuring that HSE Management System is implemented, all safety statistics are recorded and reported to the Managing Director through HSE Officer.
- H.2.4** Unless another is independently appointed, the Site Engineer will act as the Site HSE Officer and will be responsible for the day-to-day safety inspections, training and monitoring of the safety activities on site. He shall document all accidents and complete the weekly/monthly reports on time and forward them to the Managing Director
- H.2.5** All employees are responsible to comply with the HSE policy of the company and all applicable client rules and regulations on their assigned sites. They shall report any unsafe acts and conditions and cooperate all times with management to prevent accidents. It is their responsibility to wear the personal protective equipment (PPE) as issued to them and not to misuse tools and equipments.

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Section <b>I</b>	Title: <b>HSE Documentation, Issue and Control</b>	

### **I.1 GENERAL**

The documentation structure and hierarchy highlighted below shall be strictly implemented. All HSE documentations shall be controlled by the Engineer in coordination with the designated HSE Officer/ Managing Director.

### **I.2 DOCUMENTATION STRUCTURE & HIERARCHY**

The three stages of HSE documentation are:

- STAGE 1 Health, Safety and Environment Management Manual (this document)
- STAGE 2 Company HSE Management Procedure (as developed) and HSE Plan for projects (as applicable)
- STAGE 3 Project Specific Health, Safety and Environment Procedures/Guidelines

Related forms and formats are treated as part of the procedures and are numbered accordingly. Completed forms become records and serve as objective evidence of compliance with the procedure.

### **I.3 STAGE 1: HEALTH, SAFETY & ENVIRONMENT MANAGEMENT MANUAL**

This document is the principal corporate mandate and is primarily concerned with the Company HSE Policy and details the overall arrangement and organizational responsibilities to ensure that health, safety and environment issues are addressed and implemented by the company. This document is not subject to immediate change as a direct result of external (client) requirements, once it is issued for implementation. Client comments and concerns would however be incorporated after approval by company management during planned revisions following the annual HSE system review.

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**I.4 STAGE 2: HSE MANAGEMENT PROCEDURES AND HSE PLANS**

HSE Procedures give more details of how and what is done in relation to HSE activities and are treated as confidential documents of the company. The list of HSE procedures is attached in this manual. Some of these are under development. However Project Specific HSE requirements are incorporated in the HSE Plan and all required procedures (stage 3) are developed during project execution. The HSE Plan is the definitive document to be applied to the project work scope for identification, preparation, assurance and verification of the HSE Management System and associated records.

The HSE Plan is developed post award and during tenders and submitted to Client for approval as required by the contract. Applicable Hydraforce HSE Management procedures will be listed together with specific project HSE procedures of stage 3 below.

**I.5 STAGE 3:  
SPECIFIC HEALTH, SAFETY AND ENVIRONMENT PROCEDURES/GUIDELINES**

Project HSE plans and programs shall be formulated and issued by the Site Engineer to meet the specific contract/client requirements & specifications.

**I.6 SAFETY HANDBOOK**

A Safety Handbook will be issued to all employee hired by HYDRAFORCE GROUP when they join for the first time. This contains information about appropriate rules and guidelines for safety and emergency actions. These are not regarded as controlled documents. Currently the Safety Handbook is being developed and will be issued to all employees when published.

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Section <b>J</b>	Title: <b>HSE System Review</b>	

- J.1** The management shall review the HSE Management System once every year to validate that the planned system is effective and is being complied with.
  
- J.2** The review will highlight internal accident statistics, HSE audits, client audits and concerns, ongoing corrective and preventive actions and necessary actions to further improve the HSE system.
  
- J.3** HSE procedures relevant to site operations will be subject to review once every 2 years or earlier depending upon project and/or major client requirements.
  
- J.4** Records will be kept of such management reviews of the HSE system.

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Section <b>K</b>	Title: <b>Leadership and Administration</b>	

**K.1 INTRODUCTION**

Effective leadership and program administration are vital to the success of health, safety and environment program. The management’s leadership provides the foundation upon which a solid program will be built and reflects management commitment in its implementation.

**K.2 POLICY SUPPORT**

The management support to the “Company HSE Policy” will be demonstrated by periodic letters and memoranda (or any other suitable medium) on HSE matters and the HSE policy would be displayed at prominent places in offices and sites.

**K.3 INSPECTION TOURS**

Inspection tours will be conducted by the Managing Director, HSE Officer and the Site Engineer at a frequency not less than listed in the table below. The “General Inspection Checklist” will be used to assist management in tour preparation and reporting of the same.

INSPECTION TOUR	FREQUENCY
Managing Director	Every 6 Months
HSE Officer	Every 3 Months
Site Engineer	Every Month

**K.4 GROUP MEETINGS**

The group meetings ensure that safety, health and environment topics are discussed during management, department and site meetings and that accidents and near-miss incidents and the subsequent corrective and preventive actions are taken. The Site Engineer shall conduct group meetings every month. The number of meetings will depend upon the number of people working on any given site.

**K.5 HSE Audits**

Planned audits of the system will be conducted at intervals defined by management and as per specific contract requirements.

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Section <b>L</b>	Title: <b>Employee Training &amp; Communication</b>	

- L.1** New recruits/employees arriving on site are to be given induction training to be conducted by the Site HSE Officer. An accurate record of such trainings shall be maintained.
- L.2** On industrial sites, all employees shall be obliged to attend client-conducted fire fighting and breathing apparatus course. This shall be arranged by the Site HSE Officer and the area fire service as applicable on sites.
- L.3** The Managing Director will nominate employees to be trained in giving first aid.
- L.4** Periodic Safety Training will be given by HSE Officer and on safe working practices and related topics.
- L.5** Wherever necessary, safety posters and warnings will be installed to make employees aware of hazards and the correct safety practices.
- L.6** **EMPLOYEE COMMUNICATIONS**  
Employee communications are the one-to-one exchanges of information between people, and are absolutely essential to enhance individual performance through consistent interaction between Supervisors and their staff. Management will encourage employees to come out with new ideas reporting of potential hazards and near-miss incidents.
- L.7** **TASKS INSTRUCTIONS**  
Individual Supervisor is responsible for ensuring that proper instructions on how to do each new or different job are given to employees in his area of responsibility, prior to the commencement of the job.
- L.8** The Site HSE Officer together with the pertinent Supervisor shall conduct on a regular basis a tool-box meeting for the site employees. Records of attendees and subject discussed shall be kept and forwarded to the HSE coordinator for safekeeping.

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Section	Title:	
<b>M</b>	<b>Planned Inspections and Audit of the System</b>	

- M.1** Planned general safety inspections shall be performed monthly by the Site HSE Officer. The inspection shall check for hazards and unsafe practices or conditions.
  
- M.2** Upon completion of the inspection tour, a report will be completed (General Inspection Checklist & Housekeeping Inspection Form).
  
- M.3** Any uncorrected safety hazard seen at the time of inspection must be immediately be brought to the attention of the Managing Director or Site Engineer.
  
- M.4** **PRE-USE EQUIPMENT INSPECTION**  
Planned equipment checks provide an effective way of preventing unscheduled downtime. These shall be performed by competent staffs who have been trained on the equipment and who understand the importance of defect reporting. The equipment checklist shall be forwarded on completion to the pertinent Supervisor who will retain this on file.
  
- M.5** **HSE AUDITS**  
An HSE system compliance audit will be conducted on selected sites based on contract requirements/needs established by the management. The audit report will clearly indicate compliance or-non-compliance of the system and whether the system has been effective. The management will review these audit reports and recommend corrective/preventive actions by auditors and where applicable would allocate sufficient resources to ensure any shortcomings are effectively handled and improvement actions are taken as necessary.

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Section	Title:
<b>N</b>	<b>Accident/Incident Investigation and Analysis</b>

- N.1** Accidents are to be promptly and systematically reported to the Managing Director through Site Engineers.
- N.2** On being informed of or witnessing an accident/incident, the concerned Engineer shall give priority to first and medical care.
- N.3** Reports shall contain factual evidence and statements. Misrepresentation of facts is regarded as a serious breach of company rules.
- N.4** The Managing Director, HSE Officer along with the Engineer will investigate any serious/major accident and if necessary prepare separate reports.
- N.5** Normal accidents/incidents will be investigated by the HSE Officer or his designate.
- N.6** Accident/Incident Investigation Report shall be used for reporting incidents/accidents. A register will be maintained and periodically an analysis will be made on the accident data available.
- N.7** Monthly safety statistics shall be prepared by the Engineer/ HSE Officer and forwarded to the Managing Director within the first week of every month. Accident statistics are centrally maintained at the head office.
- N.8** The following formulae shall be used to calculate statistical safety performance:

$$\text{Frequency Rate} = \frac{\text{No. of Lost-Time Accidents} \times 1,000,000}{\text{Total Man-hours Worked}}$$

$$\text{Severity Rate} = \frac{\text{Total Days Lost} \times 1,000,000}{\text{Total Man-hours Worked}}$$

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Section <b>0</b>	Title: <b>Personal Protective Equipment</b>	

- 0.1** Personal protection is essential to reduce human exposure to potential hazards associated with work, which cannot practically be controlled at source. Personal protection is the last line of defense for reducing human exposure to hazards and should be capable of providing an adequate safeguard against such hazards, where other precautions are not reasonably practical.
- 0.2** The company safety regulations stipulate that Personal Protective Equipment (PPE), where provided, should be worn at work at all times.
- 0.3** Worn-out or defective PPE should be replaced immediately. Employees who willfully disregard these regulations, or tamper with PPE to reduce its effectiveness will be subjected to disciplinary action.
- 0.4** Immediate Supervisors shall instruct their crew in the correct application of PPE issued to them and will make sure that they are being used.
- 0.5** Training in the correct use of PPE will be conducted and records of these training will be kept by the HSE Officer.
- 0.6** The HSE Officer and the Engineers will ensure that stock of standard PPE items and other safety equipment are ordered on time and in line with the minimum/maximum levels set for each item.
- 0.7** PPE will be of standard quality and as stipulated by the clients.

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Section	Title:	
<b>P</b>	<b>Health &amp; Medical Fitness</b>	

- P.1** To ensure that all employees are medically fit and are enjoying general good health, medical checkups are to be done during visa renewal and during mobilization to operating areas where medical fitness certificate is essential. Age requirement if specified will have to be complied with.
  
- P.2** In general, any person having any medical problem must report to the Administration Department.
  
- P.3** The management will ensure rotation and regular leaves are sanctioned as they fall due to enable necessary recuperation and good mental health of employees.
  
- P.4** Work allocation for aged personnel is selectively done to ensure safe working for the employee in particular and on site in general.
  
- P.5** First Aid Boxes will be made available on sites, in offices and campsites. Suitably trained first-aiders will be identified for sites and camp areas.
  
- P.6** Occupational health hazards shall be identified during audits and inspections. Specific health hazards identified will be reviewed and measures will be taken to either eliminate or reduce the hazard.

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Section	Title:
<b>Q</b>	<b>Marine Safety Precautions</b>

- Q.1** Crew involved in the dredging/ marine related works including those in the dredger, ship, speedboat, pipelines, etc should be equipped with life jackets.
  
- Q.2** Life buoys with lifelines equivalent to the number of crew on duty will be provided in the entire operation duration.
  
- Q.3** A first aid box shall be made accessible on board for use in cases of emergency.
  
- Q.4** One speedboat will always be at the operation area ready to promptly respond when needed.
  
- Q.5** The following PPE will be provided on board and on site:
  - Hand Gloves
  - Safety Hat
  - Safety Shoes
  - Safety Belts

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Section <b>R</b>	Title: <b>Environmental Protection</b>	

To maintain at the minimum the impact of the assembling & trouble-shooting operations on the environment, appropriate environmental controls are to be adopted:

- R.1** All relevant government rules and regulations shall be strictly complied with.
- R.2** The HSE Officer shall ensure that the impact of their operations on the environment is assessed, minimized and that adequate mechanisms are in place to deal with potential environment pollution.
- R.3** All projects performed on client installations shall conform to the environmental standards laid down by the client.
- R.4** Each supervisor shall hold on a regular basis toolbox talks with his workforce to communicate the task instructions to the employees.
- R.5** Paramount importance will be given to housekeeping and tidiness on sites. Rubbish and wastes generated on sites will be disposed of at proper and approved locations in accordance with authority rules and regulations.

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Section	<b>S</b>	Title: <b>Equipment Control and Maintenance</b>

Equipments are to be properly maintained and the following controls to guarantee safe working condition and prompt availability when required are in place:

- S.1** The equipment Supervisor maintains a list of plant and equipment on sites. On the basis of frequency of use, he draws up a preventive maintenance plan and the level of maintenance required.
- S.2** Prior to release for use, all mobile plant and equipment are subjected to a "pre-use equipment check".
- S.3** Whenever required, breakdown maintenance is to be immediately carried out.
- S.4** All safety features on the equipment are checked regularly and operators are obliged to report any malfunction immediately.
- S.5** Servicing of plant and equipment will be done as per recommendations of the manufacturers. A copy of the operations and maintenance manuals for the equipment will be made available for easy reference.

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Section <b>T</b>	Title: <b>Crisis Management/Emergency Procedures</b>	

This section provides the general guidance for handling emergency situations on all project sites. Specific client emergency procedures existing in any given project shall be implemented and shall take precedence over this section.

**T.1** It is the responsibility of the site management team to review and ensure awareness of the emergency procedures among all site personnel.

**T.2** Suitable training will be provided to all project personnel during various stages in the project.

**T.3** Necessary posters will be put up at prominent places and all assembly areas will be suitably identified. Notices will include listing of important telephone numbers of police, ambulance, hospital, client representative, HSE Officer and project Manager.

**T.4** It is also the responsibility of all the employees to continually familiarize themselves with the assembly procedures in their relevant areas of work.

**T.5** The management is committed to the principle of safe working and desires that, on no account, should any person ever put himself to risk.

**T.6 EMERGENCY PLANS**

All actions will be coordinated with the overall emergency plan operated by the client. All emergency telephone numbers and contact names will be available. Project specific emergency plans as required by the contract will be submitted.

**T.7 EMERGENCY ALARMS**

A combination of red/yellow warning lights and alarm sirens as appropriate will be used in case of:

- Major fire or an explosion
- Gas leak (yellow warning lights)
- Major transport accident/spill of flammable liquid
- Major equipment accident
- Entrapment of personnel

**T.8** The alarm is generally triggered by client personnel as applicable depending on where the emergency occurs.

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- T.9** Subsequent actions as listed below will be taken either as an instruction from the client safety warden:
- Close all plant and equipment, if safe
  - Stop all work and report to the nearest evacuation area/assembly area and wait for further instructions
  - Stop all equipment and vehicles safely
  - Ensure all personnel are aware of the emergency
- T.10** In an emergency, all personnel are to proceed in an orderly manner to the nearest safe assembly point.
- T.11** The supervisors shall take a head count and check that all employees are at the assembly point. The HSE Officer is overall responsible to coordinate all emergency procedures along with the site Engineers. He shall inform the client/management of the result of the head count.
- T.12** Normal work will be resumed only after the all-clear signal is received from the client. Work permits may need to be re-issued following the emergency. As such the supervisors shall make all arrangements to meet the concerned authorities.
- T.13** For missing personnel, a rescue team will be formed in consultation with the client and depending upon the type and status of emergency, all efforts will be made to locate and rescue the missing personnel.
- T.14 FIRE FIGHTING**
- In case of fire, after the alarm has been sounded, and the emergency services have been called for, all efforts will be made to put off the fire by proper use of fire extinguishers, fire hydrants, hoses, etc. until more professional help comes. Sufficient number and type of fire extinguishers will be made available at strategic locations near stores, laydown areas, electrical distribution points and offices.
- T.15 GAS LEAKS**
- After the gas alarm has been sounded, the following actions will be done:
- Close all doors and windows
  - Refrain from smoking
  - Close down all equipments

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- Operations like cutting, welding are to be stopped immediately
- Await further instructions

**T.16** Any information being relayed about an emergency shall be clear and precise giving the exact location, the nature of the emergency and the seriousness of the emergency and contact numbers and names.

**T.17** Emergency drills shall be conducted on site periodically to determine readiness and effectiveness of existing plans and these shall be properly recorded. Any observation/improvement suggested for better response shall be implemented and recorded.

**T.18** For hazardous areas, consideration will be given for supply of walkie-talkie, handy telephone numbers, mobile gas detectors and strict maintenance of in-out registers.

**T.19** A review will be done after every emergency situation on the causes and the actual emergency response. A report highlighting the good points and the improvement potentials including recommended corrective and preventive actions will be indicated in the report. These findings will be reported to the management and lessons learnt will be shared with all sites.

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**U.1** Work carries an element of risk associated with it. However, the risks can be minimized if recognized and appropriate preventive measures are adopted to control them. The most common risks are:

- Fall from heights
- Collapse of excavations/trench walls
- Injury from plant and equipment
- Injury from moving, flying or falling objects
- Injury while handling or lifting
- Slip, trip or fall
- Suffocation
- Exposure to hazardous chemicals or fumes
- Fires
- Electric Shock
- Exposure to extreme climatic conditions

**U.2 RISK IDENTIFICATION**

**U.2.1** All work should be carefully regarded for possible hazards and safety measure must be incorporated into pertinent activities to reduce to the minimum the risks involved.

**U.2.2** Besides monitoring compliance to safety requirements, routine inspections must serve to likewise identify potential hazards and risks associated with a given work. Suitable corrective actions shall then be adopted to effectively reduce risks to a significantly low level.

**U.2.3** So as to motivate active employee participation in the safety effort and identification of potential hazards, suggestions and risk perceptions will be encouraged.

**U.2.4** Past safety performance shall be reviewed and analyzed to pinpoint risks involved in a specific work and such reviews and analysis will serve as basis for remedial measures.

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### **U.3 RISK ASSESSMENT**

Risks shall be categorized as follows:

- U.3.1.** LOW FREQUENCY/LOW CONSEQUENCE RISKS - generally inherent in troubleshooting & assembling works and are impossible to eliminate. Their associated costs are generally absorbed by the company.
- U.3.2** LOW FREQUENCY/HIGH CONSEQUENCE RISKS – include fires, explosions, environmental damage and similar accidents. Such risks are transferred and are covered by insurance policies.
- U.3.3** HIGH FREQUENCY/LOW CONSEQUENCE RISKS – include minor injury accidents, pilferages and other minor property damages. Such risks are reduced through effective project management.
- U.3.4** HIGH FREQUENCY/HIGH CONSEQUENCE RISKS – these are managed within the company’s risk portfolio and may involve the risk transfer option by insurance policies.

### **U.4 RISK CONTROL**

The following risk control strategies shall be utilized:

- U.4.1** RISK AVOIDANCE – use of work methods and materials with lesser risk potential shall be employed.
- U.4.2** RISK TRANSFER – where the consequences of the risks are considerable, such risk shall be covered with relevant insurance policies that will compensate for losses incurred. Contracts should at least be covered by Contractor’s All-Risk Insurance and Workmen’s Compensation Insurance Policies.

### **U.5 RISK REDUCTION**

In order to reduce risks to the minimum level and preempt accident-prone situations, appropriate documentation and analysis of data should be established and implemented.

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## **U.6 RISK RETENTION**

Where a risk cannot be avoided due to the nature of work and where risk-transfer and risk-reduction cannot be practically applied, such risks are then inevitably retained. Nevertheless, proper controls should be established and implemented.

## **U.7** In particular, emphasis is made on the following crucial measures:

- Hazard analysis are to be promptly completed and corrective actions immediately put in place
- Use of safe working facilities
- Encourage employee participation in safety initiatives
- Avoid or eliminate risk at source
- Contain risk by protective enclosure
- Reduce employee's exposure to risk
- Use of Personal Protective Equipment
- Use of Preventive Maintenance
- Provision of properly lighted and ventilated work space
- Regular reporting and continuous improvement in the safety systems

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Frequently, assembling/ trouble-shooting work is done in a live plant area or in an area where there are existing services. Permit-To-Work System is therefore employed for all projects to the extent dictated by the nature of work and site area. This system requires that a formal written permission is obtained prior to carrying out a non-routine or first-time work. The work permit format that will be the one supplied by the client and generally contains the information regarding the nature of work to be done, the conditions under which the work needs to be performed and the period of validity of the work permit.

**V.1 HOT WORK PERMIT**

A hot work permit is mandatory before commencement of all works where the activity may use or generate a source of ignition and/or the work is to be carried out in an inflammable atmosphere. This includes activities like soldering, welding, torch-cutting, grinding, grit-blasting, shot-blasting, electrical and open-flame heating and the use of equipment that allows a static electric charge to be built up.

**V.2** Immediately after the work is accomplished, the area will be left in a clean, tidy safe and the pertinent permit shall be signed off as completed.

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<b>W</b>	<b>Attachments</b>	

- W.1 Accident/Incident Investigation Report**
- W.2 Weekly Inspection Checklist**
- W.3 General HSE Audit Checklist**
- W.4 Housekeeping Inspection Report**
- W.5 Monthly Safety Statistics**
- W.6 HSE Suggestion Form**
- W.7 Near Miss / Accident Report**