

LEADING THE WAY TO  
A CONTROLLED, SAFER  
& SECURE FUTURE

 عبر الخليج  
**PAN GULF**  
INDUSTRIAL SYSTEMS





## Health and Safety Plan Project Description

Document No. :

Contractor : Customer Name.

Purchase Order No. : As per customer Purchase order

<b>1</b>	<b>04/01/2010</b>	<b>JGP</b>	<b>JMA</b>	<b>MAS</b>	<b>updated</b>
<b>0</b>	<b>19/03/09</b>	<b>QA/QC</b>	<b>PM</b>	<b>OM</b>	<b>Contract Requirement</b>
REV	DATE	PREPARED BY	REVIEWED BY	APPROVED BY	REASON FOR ISSUE



## INTRODUCTION

**This Health and Safety Plan describes the activities that assure quality and establish a system for Quality Assurance verification and assessment of PGI Systems activities during performance of project work. The work to be performed includes, but is not limited to, Design, Procurement (the items which are not supplied by client), Construction, Testing, pre-commissioning and as-built. This Health and Safety Plan is applicable to all work performed by PGI Systems.**

**This PGI Systems Safety Plan is documented in the QCP and meets the intent of ISO 9001:2000.**

**PGI Systems has, and will adopt existing client procedures/specifications and will use them as necessary to implement this Safety Plan. As required, new procedures will be developed to meet applicable requirements.**

**Qualified individuals assigned to the project by PGIS Systems, but who are not directly responsible for performance of the work process, administer and oversee the operation and effectiveness of the Health and Safety.**

**PGI Systems QA/QC verifies and assesses that requirements are being met by document review, inspections, surveillances, auditing or otherwise determining and documenting whether items, processes, or services meet specified requirements.**



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## SECTION 1: OCCUPATIONAL HEALTH AND SAFETY POLICY

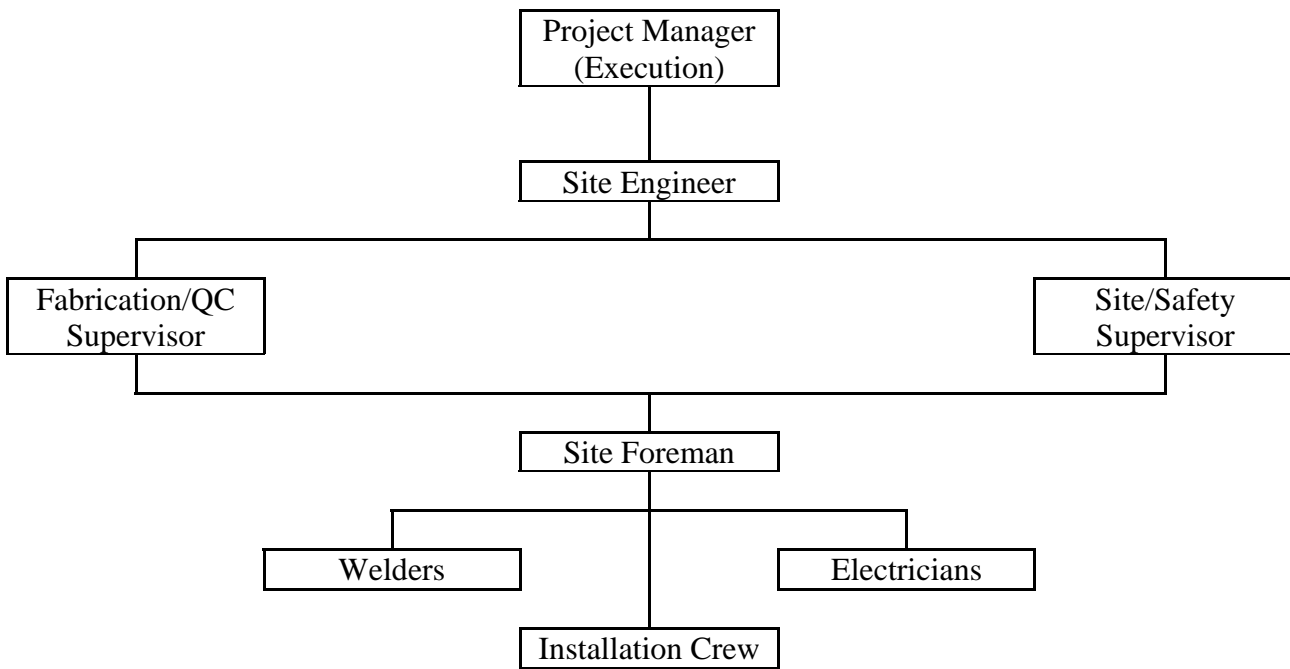
- 🔗 It is our aim to prevent all working injuries by adopting world class occupational health and safety practices. To ensure this aim is achieved, PGI Systems shall diligently maintain a positive and proactive health and safety management system.**
- 🔗 It is the duty of each employee to take reasonable care for his own health and safety and for the health and safety of anyone else who may be affected by his acts and omissions. Employees are encouraged to actively contribute and participate in the on-going management and development of workplace health and safety.**
- 🔗 It is our practice to provide and maintain a safe system of work, to arrange a safe system of work in connection with hazardous substances, to provide a safe working environment, to provide adequate information on hazards, to provide instruction, training and suitable supervision to employees and to provide adequate health safety and welfare procedures both in the office and on any job site.**
- 🔗 Our Safety Policy is designed to highlight the importance and significance of safety, health, welfare & confidence of all employees and to ensure a safe and healthy working environment at all times.**
- 🔗 To empower high standards of safety, every PGI Systems project personnel shall comply with the relevant safety rules and regulations and to follow the below mentioned codes of conduct for safety laid down by the PGH corporation.**
- 🔗 To ensure that each and every one of us has a duty and responsibility for our own safety, and that of others.**
- 🔗 Meeting in all respects the applicable statutory requirements.**
- 🔗 Comply with safety rules and regulations.**
- 🔗 To eliminate unsafe activities and operations.**
- 🔗 To pro-actively establish the possibility of potential accidents and to take the appropriate safety precautions to avoid any risk to health or untoward incident.**
- 🔗 Encouraging effective use of safe working procedures and practices.**
- 🔗 Maintaining a hazard free, clean and safe work environment at the respective project site.**
- 🔗 Enhance the safety consciousness and knowledge through educational training, and through advanced quality related technology to all employees.**

**M A Snell**

**General Manager**



## SECTION 2: TYPICAL SITE ORGANIZATION CHART





## SECTION 3: ASSIGNMENT OF SAFETY RESPONSIBILITIES

### **3.1. Project Manager/Project Engineer:**

The Project Manager/Engineer has the operational responsibility for the implementation of the Safety Program on the projects, and actively participates with all other Contractors, Clients HSE Committees and Incentive programs.

He ensures the client's safety requirements, OSHA Standards, Local Government Labor and Safety Codes, and training requirements are initiated and followed by the Supervisors, Foremen and all Employees.

### **3.2. Supervisors:**

Project Supervisors shall ensure that Foremen comply with all applicable project safety rules and regulations.

Supervisors shall inform and advise the Foremen of forthcoming hazardous activities enabling them to inform the Employees involved of those hazards.

Supervisors shall conduct Job Safety Analysis, STA, and Weekly Toolbox Talks and inform employees of the safest way to perform tasks.

### **3.3. Foremen**

All Project Foremen will conduct Job Safety Analysis and Weekly Toolbox Talks on various topics including forthcoming hazardous operations ensuring all participants are fully aware of the potential hazards involved.

Foremen shall enforce the use of Personal Protective Equipment by all employees, ensure all work areas are safe, and ensure tools are in good condition and being used in a safe manner for the purpose intended,

Foremen shall report any safety problems to Supervisors.

Foremen shall ensure employees are informed of the safest way to perform tasks.

### **3.4. Employees**

All employees shall use the correct tools and equipment for the activity they are involved in.

All employees shall wear the correct Personal Protective Equipment clothing required and provided for the activity they are involved in-

Employees shall ensure not to endanger themselves or fellow workers.

Employees shall ensure that tools and equipment are kept in good condition.

Employees shall refrain from horseplay and abuse of safety devices, equipment and welfare facilities.

Employees shall report any accident, near miss or hazardous condition to his Supervisors immediately. Employees shall be familiar with the requirement of the safety plan, PGI Systems safety rules and take note of any special safety precautions in restricted areas.

Employees shall obey all posted warning signs.

### **3.5. Safety Inspector/Officer:**

The Project Safety Inspectors shall be responsible to the Project Safety Manager and shall ensure the compliance of all PGI Systems employees with the requirements of client's Safety Policy and company



Safety Procedure.

The Safety Inspector will conduct frequent daily site inspections monitoring safety compliance, reporting negative findings to the Safety Manager.

The Safety Inspectors will administer the weekly site toolbox talks ensuring all attendees sign the attendance document for record purposes.

## **SECTION 4: SCOPE OF WORK**

The detailed scope of work is to be agreed and is not part of this safety document.

## **SECTION 5: STANDARDS & REGULATIONS**

PGI Systems shall perform the work at all times in compliance with the latest editions of the approved HSE plan of the main contractor (or customer).

## **SECTION 6: ZERO INJURY TECHNIQUES**

PGI Systems will work towards achieving zero injuries; the following approach will be utilized.

1. Pre- Project/Pre- Task Planning for Safety.
2. Safety Orientation and Training
3. Written Safety Incentive Program
4. Accident [Incident Investigations]

These four techniques are sub-divided into the following most significant elements 1, Pre- Project/Pre-Task Planning For Safety

### 1. Pre- Project

- Safety Goals
- Safety person/personnel
- Pre-placement employee evaluation

### 2. Safety Orientation and Training

- Task Hazard Analysis
- Task Training
- Individual recognition
- Group recognition
- Sub-contractor recognition
- Milestone recognition
- End of Project recognition

### 3. Written Safety Incentive Program

- Safety Goals
- Owner involved in orientation



- Safety Policies and Procedures
  - Project Specification orientation
  - Formal safety training
4. Accidents / Incidents (Near Miss) Investigations
- Accidents / Incidents Committee (SC)
  - Near Misses reported to client
  - Near Misses investigated
  - Near Misses without injury investigated
  - Near Misses Review incidents/Near Misses by Safety
- Project work hour exposure and Safety statistics reported to client

### **Accident/ Incident/ Near Miss Investigation**

The investigation of an Accident/ Incident / Near Miss gives employees the message that PGI Systems Management are concerned and intend to establish the causes of the Accident / Incident/Near Miss in order to prevent a similar occurrence. The lack of an investigation conveys the message to employees that PGI Systems Management is not interested in their employee's welfare, safety and health.

## **SECTION 7: JOB SAFETY ANALYSIS / RISK ASSESMENT**

PGI Systems Supervisors/Foremen shall conduct a Job Safety Analysis (JSA) prior to undertaking tasks where there is believed to be the greatest accident risk, thereby reducing the risks associated with the potential accident or hazard to an acceptable level, or eliminating the risk all together.

The JSA's used by PGI Systems are required to be submitted 72 hours prior to the start of jobs.

The selected jobs will be prioritized into four (4) main areas of risk:

1. Jobs with potentially high accident frequency
2. Jobs with lower frequency but higher severity
3. Jobs with serious Injury potential
4. New jobs with no accident listing

Once the job to be undertaken has been prioritized into one of these categories, the next step is to conduct the JSA. This can be done using either the direct observation method or the discussion method. For the best results observe and discuss the hazardous activity use an employee experienced in this area of work.

Using the JSA form itemize the basic activity steps in sequence taking the information as observed, or the information resulting from discussions. Against each itemized activity step, list the potential accidents and/or hazards that could occur utilizing the categories listed. Then respond to each of the potential accidents and/or hazards listed the recommended safe activity procedures to be taken to prevent the potential accident developing into an actual accident.



The JSA once completed will then be discussed with the employee(s) undertaking the job, ensuring that all the steps to be taken are fully understood by all, In addition to using this JSA procedure to evaluate an activity with accident and/or potential hazard risks, it can be used to assist the initial training of new employees, to review safe working procedures with existing employees at toolbox talks, or to assist accident investigations.

## **SECTION 8: OBJECTIVES — INCIDENT AND INJURY FREE**

PGI Systems shall endeavor to raise the level of safety awareness of all employees on the worksite in order to achieve Incident/Injury Free status.

PGI Systems management recognizes that eliminating worker injuries on projects for significant periods of time is only possible by the effective communication to all employees of the following safety techniques, Job Safety Analysis, Safety Orientation, Safety Training, written Safety Incentive programs, Accident/Incident and Near Miss reporting and STA. PGI Systems shall devote the necessary resources required for the development and implementation of the safety techniques that provide the highest impact on achieving Incident Injury Free status on this project.

INCIDENT AND INJURY FREE is the goal that PGI Systems is committed to achieving.

## **SECTION 9: ACCIDENT / INCIDENT / NEAR MISS REPORTING**

PGI Systems shall ensure that all accidents, incidents, near misses, injuries and illnesses requiring medical attention,(other than First Aid cases), damage to property of client and PGI Systems and fires are reported orally at the time of the incident, but not later than one (1) hour afterwards, PGI Systems shall encourage employees to report Near Misses, there will be no disciplinary action taken against employees who notify management of Near Misses.

The information gathered from a Near Miss report can be utilized to prevent any future incident of the same nature from becoming an actual accident the next time.

It is of the utmost importance that Management is notified of any Near Miss, regardless of how insignificant it may appear to be.

As and when required, the customer's accident/incident reporting procedure will be followed.

PGI Systems shall submit written reports on the client form with satisfactory content to the client within twenty four (24) hours after each incident.

For major injuries and major damage to property, a written report shall be promptly submitted to the client's site manager and subsequently, client, owner and PGI Systems Project Manager shall perform an investigation.

A job site Safety Log Book shall be kept, summarizing all the records of:

- Work injuries
- Fires
- Incidents or property damages over \$2,500
- Motor Vehicles collisions
- Incidents Involving damages to owners equipment and properties



- Damages and all accidents involving cranes and heavy equipment.

A job site Safety Log Book shall be maintained for noting safety items that need correction or to comment on good safety practices.

PGI Systems management recognizes that eliminating worker injuries on projects for significant periods of time is only possible by the effective communication to all employees of the following safety techniques:-Job Safety Analysis, Safety Training, Accident/Incident and Near Miss reporting.

## **SECTION 10: EMERGENCY RESPONSE PLAN**

### **10.1. Purpose**

The purpose of this emergency response plan is to detail individual responsibilities, outline the emergency control resources, and to assist in the development of an efficient rapid response intervention structure, integral to which will be the provision of testing and training at the work location,

### **10.2. Scope**

PGI Systems will follow the Emergency Procedure of the Customer as appropriate, and Emergency Evacuation drills will be organized at the site.

This guide covers organization, evacuation during an emergency and individual roles and activities at the work location.

#### **10.2.1 Safety Officer**

The Safety Officer shall assist the PGI Systems Project Manager

His major duties and responsibilities are to:

Plan and conduct project Construction Site Drills for evacuation on a quarterly basis. Liaise with the client in evacuation drills.

Ensure that the emergency equipment is maintained and available for use.

Instruct all new staff on emergency response procedures.

Direct First Aid Personnel and Fire Fighting Teams under the direction of the PGI Systems Project Manager.

Report to the PGI Systems Project Manager on the status of the emergency, evacuation etc, and to receive further instructions.

Instruct sub- contractor's employees to evacuate the site when instructed by the Emergency Control Centre.

Record all emergencies and actions taken in a sequential manner.

Ensure that sub-contractors report the names and number of personnel at the assembly point and confirm the number is correct,

Inform PGI Systems Project Manager of the evacuation status.

#### **10.2.2 Client Employees & Visitors**

Client employees conducting various tasks as well as visitors will be under the jurisdiction of the Project.

PGI Systems employees will familiarize themselves with the site emergency sirens and will observe and adhere to the Plant Emergency procedures at all times.



On hearing the Emergency alarm, the PGI Systems personnel working on the project will evacuate the offices and site through the approved exit route and assemble at the agreed muster station. Other emergency equipment, as appropriate, will be provided as required in accordance with the requirements of the construction activities at the discretion of the PGI Systems Site Engineer.

## **10.3 Emergency Actions**

### **10.3.1 Fire**

On discovering a fire, the person(s) must raise the alarm immediately at the work location, which will normally be by means of verbal communication. Under no circumstances should an individual attempt to extinguish a fire until he has raised the alarm and alerted others to the emergency.

After raising the alarm an attempt should be made to extinguish the fire using portable hand held fire extinguishers or other means if available.

On activation of the emergency alarm, the emergency response procedures will be initiated.

On hearing, the alarm all personnel are to cease work, make the areas safe by shutting down all engines, switching off electrical supply to equipment and hand tools, then make their way to the nearest assembly point and wait for further instructions.

### **10.3.2 Explosions**

Upon hearing an explosion or being notified of one all personnel shall immediately evacuate to their designated assembly point.

### **10.3.3 Leakage of Toxic or Flammable Gas or Liquid**

In the event of person(s) suspecting a toxic or flammable gas leak in the work location the alarm should be raised immediately, the local area should be evacuated, and personnel should travel across wind to a safe location and preferably to the designated assembly points.

Prior to resumption of work, the area will be gas tested and established if it is safe to return to the work site. The Safety officer will advise the Site Engineer/ Project Manager of any actions taken in this regard.

## **SECTION 11: HOUSE KEEPING**

PGI Systems maintains a 'Good Housekeeping' policy which is carried out on all projects. All materials delivered to PGI Systems, PGI Systems Sub-Contractors, shall be promptly stored correctly in the warehouse, stores, lay down areas or other approved suitable locations.

All PGI Systems locations shall be kept as clean and tidy as is possible, given the tasks being performed. All PGI Systems workers shall be instructed to tidy up while they work and debris shall be removed frequently throughout the day.

All work areas access shall be kept free of cables, hoses, pipe work etc. which shall be stored correctly to eliminate the risk of tripping.

Where work is being conducted in restricted areas, PGI Systems shall ensure that high standards of housekeeping prevail.

PGI Systems Sub-Contractors, site facilities shall be kept hygienically clean at all times.

A house keeping team will be setup for each site and at the end of each workday, each crew shall be responsible for housekeeping in their area, prior to leaving site.



## SECTION 12: FIRST AID AND MEDICAL FACILITIES

### 12.1 Introduction

First Aid facilities will be provided in accordance with the contract requirements.

These facilities are intended for immediate assistance prior to hospitalization or medical assistance for minor injuries which do not require hospitalization. Facilities may vary in relation to the work location.

### 12.2 Co-ordination with Company's Hospitals, Clinics

For cases of severe injuries the PGI Systems Project Manager together with site engineer will coordinate and prepare for evacuation to the nearest Hospital.

### 12.3 Definition of Medical Emergency

A medical emergency is defined as a serious injury or illness that endangers life or limb and requires immediate medical treatment.

#### Type of Emergency:

First Degree — life or limb endangered within minutes.

Second Degree — life or limb is not endangered within hours

Third Degree — life or limb is not endangered, but victim's condition is serious enough to require immediate medical aid.

## SECTION 13: PERSONAL PROTECTIVE EQUIPMENT

**13.1** Approved Hard Hats shall be worn in the construction area and existing plant facilities by all PGI Systems employees and all PGI Systems Sub-Contractor employees.

**13.2** Safety glasses with side shields will be worn in the construction area and existing plant facility at all times by PGI Systems employees.

In other areas of operation such as, but not limited to welding, burning, grinding, and handling chemicals, appropriate and approved eye/face protection shall be worn.

**13.3** Safety shoes with steel toe caps shall be worn on site by PGI Systems employees at all times.

**13.4** A full body harness shall be worn by all PGI Systems employees when working at above ground levels, or in a precarious position.

**13.5** Long sleeves to be worn at all times.

**13.6** Seat belts shall be worn by PGI Systems employees operating any motor vehicle or equipment with rollover protection during performance of work. Passengers are also required to comply where seat belts are available.

**13.7** Hearing protection shall be used in areas where noise levels exceed specified safety limits.



## **SECTION 14: WORKING AT HEIGHTS -**

PGI Systems shall determine if the walking/working surfaces on which employees are to work have the strength and structural integrity to support the employee's weight safely. Where unprotected edges and sides exist on a walking/working surface, which is 6 feet (1.6 meters) or more above a lower level, employees shall be protected from falling by the use of 100% tie-off personal fall arrest systems. PGI Systems employees working in a hoist area 1.6 meters or more above a lower level shall be protected from falling by 100% tie-off personal fall arrest systems. If the guardrail system is removed to facilitate the hoisting operations and the employee, must lean through the access or out over the edge of the access opening to receive materials, that employee shall be protected by a personal fall arrest system. To prevent materials falling from a height, PGI Systems shall erect toe boards, screens or guardrail systems or erect a canopy structure and keep potential fall objects far enough from the edge of the higher level so that those objects would not go over the edge if they were accidentally displaced. The area to where objects could fall shall be barricaded off to prevent employees entering the area and being struck by falling objects.

PGI Systems employees shall not be permitted to walk on steel girders, pipes or sheet roofs, or any other structure without being tied off.

A personal fall arrest system shall be used consisting of an anchorage, connectors, a body harness and to include a shock-absorbing lanyard, lifeline or a suitable combination of these. Body belts are prohibited. Tag lines shall be used to control all loads, and containers shall be used for carrying nuts and bolts. All tools shall be secured by tie lines to prevent them falling.

## **SECTION 15: ELECTRICAL**

The majority of electrical accidents result in burns of varying degrees. In flammable atmospheres, electrical sparks can produce fire and explosion, which can result in loss of life and serious damage to property. All electrical installations shall always be treated with utmost caution, no matter what voltages are used.

PGI Systems Management shall ensure that a thorough knowledge of the work to be undertaken is available and understood, that the correct personal protective equipment is available to all employees, that all the necessary work permits are obtained and a lock/tag-out is in place prior to work commencing.

PGI Systems Management shall not permit any employee to work in such close proximity to any part of an electrical power circuit that the employee could contact directly or indirectly through arcing from the electric power circuit in the course of his work.

PGI Systems shall provide its employees with insulated protective gloves where operators of jack-hammers, crowbars, or other hand tools may contact an underground power circuit when excavating trenches etc.

Electrically powered hand tools, extension cords and portable electric hand lamps shall be inspected each time they are issued, during use and when returned to store. Those which are damaged shall be withdrawn from service immediately, tagged 'unsafe-do-not use' and repaired by a qualified electrician at the soonest.

PGI Systems employees shall operate all electric power tools through Ground Fault Circuit Interrupters (GFCI), unless they are doubly insulated.

PGI Systems employees shall ensure that all electrically operated power tools are rated and used at a voltage not exceeding 125 volts.



Electric Power Operated tools shall not be lifted (hoisted) by using their power cable to achieve this. When working on electrical equipment insulated protective gloves need to be used.

## SECTION 16: WORK PERMITS

All activities performed inside specified “ restricted areas “ shall be executed only after obtaining the necessary work permits

Also inside “ fenced and gated areas the activities shall be executed only after obtaining necessary work permits ‘for the area and shall be renewed or extended at each shift change. All work permit receivers shall have a valid certificate issued by the client after successfully attending the appropriate course.

The activities in “Restricted areas “shall be performed only under supervision and the work executed by qualified and certified craft personnel. The certification shall be duly approved by client.

### **There are four basic work permits:**

#### **1. Release of hazardous liquids or gases**

This permit is required when opening lines or vessels that may release hazardous or toxic materials. This is the function of the client’s Operations and Maintenance only.

#### **2. Hot work**

A Hot Work permit is required when using spark or flame producing equipment and for vehicles entering into restricted areas.

#### **3. Cold work**

A Cold Work permit is for work that will not produce sufficient energy to ignite flammable atmosphere/materials.

#### **4. Confined space entry**

Confined Space Entry (CSE) Permit training will be conducted by the Customer’s Safety Dept. Each person involved in the execution of the task requires to be trained in CSE.

A Confined Space Entry permit is required for tank cleaning, tank inspection, and work in sewers or excavations of 4 feet or deeper.

### **Other Permits**

#### **1. Radiography Permit (Where applicable)**

Radiographic Permits are required for any work involving radiography. Radiography permits are approved by the Customer and monitored by Customer’s Safety Dept.

#### **2 Permit to use Material/Equipment producing ionizing radiations.**

All employees using ionizing equipment shall have a valid permit to use this type of equipment and be aware of the mandatory precautions to be taken against radiation hazards.

#### **3. Excavation Permit**

All excavation work shall be executed only after receiving an excavation permit.

When there is reason to suspect the presence of a hazardous atmosphere in an excavation, personnel entry into the excavation will be treated as confined space entry with the appropriated gas tests, entry permit and if necessary the appropriate artificial ventilation. Confined Space Requirements shall be initiated in all excavations 4 feet or deeper.



## SECTION 17: SECURITY PLAN

### 17.1 Purpose

The purpose of this Security Plan is to minimize the risk of loss by, theft, fire, vandalism, sabotage or otherwise to the works, (permanent or temporary) and consumable materials, equipment, construction plant, offices, site facilities, and personal property, as per the client requirements.

### 17.2 Procedure

The Security Plan of the customer requires to be followed.

Only personnel in possession of a Plant ID badge will be allowed to enter the work location.

#### 17.2.1 Vehicle Permit Procedure

Appropriate vehicle permit stickers for vehicle access to the Project site and to the Client Plant facilities shall be issued for vehicles and will be placed on the inside of the windscreen as instructed.

The issuance of appropriate vehicle permits does not relieve the driver from his responsibility to comply with the local and national laws and driving regulations.

Delivery vehicles (vendor, sub-contractors, supplier, etc) will only be allowed access to the work location if the following conditions are met:

The driver has a valid ID badge, visitors pass or documentation indicating the delivery is for the Project.

The destination of the goods shall be the materials receiving location or a specified lay-down yard.

To authorize exit from the site, the following conditions must be met;

Delivery notes shall be countersigned, (receiver's name printed clearly, and signature), stating "materials received", by a PGI Systems authorized official.

A Delivery Note must be provided for any goods in the existing delivery vehicle providing that they are, for example, being returned as unsuitable or for repair, signed and stamped by an authorized official.

For materials, leaving site in vehicles other than vendor delivery vehicles a signed Material Gate Pass must accompany it.

No person will be allowed to remove from the work location, any tool, equipment or material, unless he is in possession of a material gate pass, listing the items to be removed, issued and signed by the appropriate PGI Systems authorized signatory.

#### 17.2.2 The following records will be maintained by PGI Systems Management:

Identification badge logs

Vehicle permit register

#### 17.2.3 The following records will be maintained at the work location:

Material Gate Pass File

Vehicle Entry Log

Daily Activity Log

Visitor Entry Log



## SECTION 18: GAS CYLINDERS, WELDING & CUTTING

PGI Systems shall ensure that whenever moving, storing or transporting compressed gas cylinders valve protection caps shall be in place and secured with a non combustible material chain in the vertical position.

If compressed gas cylinders need to be hoisted, they shall be secured on a cradle, sling board or pallet before hoisting. When compressed air cylinders are to be transported by powered vehicles, they shall be stored and secured in a vertical position. Oxygen cylinders shall be stored separately from fuel gas cylinders or combustible materials by a minimum of 20' (6.1 meters), or by a noncombustible wall (barrier) at least 5' (1.5 meter) high having a fire resistance rating of at least ¼ hour, Each gas cylinder is to be leak tested prior to the use of the equipment.

### **Arc Welding & Cutting**

PGI Systems shall only use specifically designed manual electrode holders, which are of a capacity capable of safely handling the maximum current required by the electrodes. All cables for arc welding and cutting shall be insulated completely and capable of handling the maximum current requirements. Ground return cables shall have a safe current carrying capacity equal to or exceeding the specified maximum output capacity of the arc welding, or cutting unit, which it services. Pipelines or conduits shall not be used as ground return. All arc welding and cutting machines shall be grounded either through a third wire in the cable or through a separate wire which is grounded at the current source. Flash back arrestors shall be connected to cutting torches. Whenever practical, arc welding and cutting operations shall be shielded by non-combustible screens which will protect employees or other persons in the vicinity from the direct rays of the arc.

### **Fire Prevention**

PGI Systems, shall whenever possible, move objects to be welded, cut or heated to a designated safe location, or if not possible all movable fire hazards shall be taken to a safe place. Where not practical to move fire hazards, such hazards shall be protected with suitable fire extinguishing equipment which shall be immediately available in the work area and maintained for instant use. Where deemed necessary a fire-watch shall be provided.

### **Ventilation and protection in welding, Cutting and Heating**

PGI Systems employees performing general welding, cutting and heating may normally do so without mechanical ventilation or respiratory equipment, but where unusual physical or atmospheric conditions arise, suitable mechanical ventilation or respiratory equipment will be provided.

### **Gas Welding & Cutting**

Fuel gas and oxygen hoses shall be easily distinguishable from each other, by color or surface characteristics, fuel gas and oxygen hoses shall not to be interchanged.

All hoses and couplings shall be inspected at the beginning of each shift. Welding equipment inspections and color coding shall be done. All defective hoses and couplings shall be removed from service.

Torches shall be inspected for leaking shut off valves. Defective torches or torches without flashback arrestors shall not be used. Oxygen and fuel gas gauges and plus regulators shall be in proper working order while in use. A suitable means of transporting and keeping cylinders from being knocked over while in use shall be provided at all times.



Fire Extinguishers shall be readily available at the work location.  
House Keeping shall be carried out at the regular intervals throughout the shift.

## **SECTION 19: IONISING RADIATION**

Specific procedures shall be developed and implemented by PGI Systems for the safe use of ionizing radiations. These shall comply with local and National government regulations, recognized standards of good radiographic health practices and the provisions of the client specifications. The human exposure to radiation shall be in accordance with international limits.

Any PGI Systems approved Sub-contractor activity that involves the use of radioactive materials shall be performed by competent persons, specially trained in the proper and safe operation of such equipment, in general such activities are to be performed at end of the day shift.

Any radioactive source shall be used only after written approval by client.

All employees using ionizing equipment shall have a valid ‘permit to use material/ equipment producing ionizing radiations’ and must be aware of the mandatory precaution to be taken against radiation hazards.

Prior to any use of Radiography, the method statement or Job Safety Analysis (JSA) need to be given to the client for permission to proceed.

## **SECTION 20: HAND TOOLS AND PORTABLE POWER TOOLS**

### **Purpose**

This procedure is to ensure the safety of PGI Systems employees when using hand tools and portable power tools.

### **General**

PGI Systems shall furnish its employees with hand tools and portable power tools, which have been maintained in a safe condition.

Tools shall be equipped with proper safeguards and used only in applications for which they are designed.

Portable power tools shall be of the double insulated type or three wire grounded type and will be rated or used at a voltage 125 /120 volts.

### **Hand tools**

PGI Systems shall not issue employees with unsafe hand tools, or will they permit the use of unsafe hand tools.

Adjustable wrenches, pipe wrenches, end wrenches and socket wrenches will be replaced when the jaws are sprung to the point where slippage occurs.

Impact tools such as drift pins, wedges, and chisels shall be kept free of mushroomed heads.



## **Portable Power Tools**

PGI Systems will ensure electric power operated tools shall be either of the approved double insulated type, or operated through Ground Fault Circuit Interrupters (GFCI's)

For pneumatic power tools, hose connections shall be safe guarded with safety clip and locking pin. On hose with working pressure > 10 bar no jubilee clips are allowed but only suitable hose clamps.

Compressed air shall not be used for cleaning purposes.

Manufacturer safe operating pressure for hoses, pipes, valves, filters and other fittings shall not be exceeded.

Air hoses shall not be used for hoisting or towering tools.

All hoses in excess of 2" (inch) inside diameter shall have a safety device at the source of supply, or branch line to reduce pressure in case of hose failure.

Fuel powered tools shall be switched off when being refueled, serviced, or maintained.

Where fuel powered tools are being used in confined spaces the use of personal protective equipment and adequate ventilation shall apply,

Fuel for fuel operated power tools shall be stored in metal safety cans. Fuel shall not be stored in plastic cans.

## **Abrasive Wheels & Tools**

All PGI Systems grinding machines shall be supplied with sufficient power to maintain the spindle speed at safe levels under all conditions of normal operation. All grinding machines shall be equipped with safety guards.

Only competent personnel are allowed to change wheels, employees will be trained in safe use of abrasive wheels and tools.

All mounted abrasive wheels shall be provided with safety guards strong enough to withstand the effect of a bursting wheel. The maximum angular exposure of the grinding wheel periphery and sides shall not be more than 90° except where work requires contact with wheel below the horizontal plane of the spindle, the angular exposure shall not exceed 125° All mounted abrasive wheels shall be provided with rigidly supported work rests readily adjustable and kept at a distance not to exceed 1/8" (3.25mm) from the surface of the wheel,

Before use, all mounted abrasive wheels shall be inspected and ring tested by tapping them (to ensure they are free from cracks or defects). Employees shall wear eye and face protection equipment, safety glasses with side shields and protective face shield, at all times when using abrasive wheels and tools.

## **SECTION 21: SCAFFOLDING AND LADDERS**

### **Purpose**

The purpose of this section is to ensure safe working practices are followed when erecting scaffolding and using ladders.

### **General Requirements**

Scaffolds are to be inspected on a weekly basis inclusive of after each high wind storm or damage.

All planking shall be of scaffold grade. Permanent decking, parts of structure, walkways, footbridges etc. which men use in the course of their work, shall be provided with a guardrail system and toe boards at an edge from which men, tools or materials could fall 1.6 meters or more. PGI Systems shall ensure



the footing or anchorage point for scaffolds shall be sound, good and capable of carrying the maximum Intended load without settlement or displacement occurring.

All scaffolding shall only be erected, moved dismantled or altered under the supervision of a competent person,

Unstable objects, barrels, buckets, concrete blocks or loose bricks shall not be used to support scaffolds or scaffold planks.

The competent person shall provide certification to the effect that he has the experience to hold this position,

Scaffolding shall display at all times an appropriate Scaff Tag, Green to indicate that the scaffold is safe use, Red to indicate that the scaffold is unsafe to use.

The Scaff tag shall be signed and dated by the competent person on the day of inspection. Scaffolds and their components shall be capable of supporting without failure to the maximum intended load.

All scaffold materials shall be inspected for defects; any damaged scaffold or accessories shall be repaired if possible or replaced,

All planking shall be of scaffold grade or equivalent.

An access ladder or equivalent safe access shall be provided to all scaffolds.

Scaffold planks shall extend over their end support by at least 6" but not more than 12'.

Scaffold poles, legs or uprights shall be plumb and securely/ rigidly braced to prevent swaying and displacement.

Work shall not be carried out on scaffolds during high winds or storms.

Toe boards and Guardrails shall be provided on all scaffold open ends.

No dissimilar metals shall be used in scaffolds. Scaffolds shall be tied to and securely braced against the building at intervals not exceed 30 feet horizontally and 26 feet vertically.

Where mobile freestanding scaffold towers are used, the height shall not exceed the minimum base dimension. Castors shall be provided with a positive locking device which shall be operated at all times the mobile scaffold is being used. All employees, tools and materials are to be removed from mobile scaffolds before moving them to a new location. Scaffolds shall not be loaded with material in excess of the working load for which they were designed.

## **Ladders**

### **General Requirements**

The following requirements apply to all ladders as indicated.

All portable ladders shall be capable of supporting at least four (4) times the maximum intended load, except for the extra heavy duty type IA metal or plastic ladder shall sustain at least 3.3 times the maximum intended load.

The rungs of individual rung/step ladders shall be shaped so that the employees' feet cannot slide off the rungs.

Ladders that have to be placed in any location where they can be displaced by workplace activities or traffic, such as in passageways, doorways or driveways shall be secured to prevent accidental displacement, or a barricade shall be used to keep the activities or traffic away from the ladder. Ladders shall be tied off before employees are allowed to access them. Where a ladder is not tied off, an employee shall stand at the foot of the ladder holding it while an employee climbs it. Ladders shall not be moved, extended or shifted while they are occupied.

Ladders shall be inspected for visible defects by a competent person on a periodic basis and after any occurrence that could affect their safe use.



All ladders with structural defects shall be removed from service and tagged with a notice “DO NOT USE.”

Only metal or timber ladders shall be provided and used. Metal ladders are not to be used in electrical substations or electrical manholes or near live lines.

## SECTION 22: CRANES & RIGGING EQUIPMENT

### 22.1 Cranes and Derricks

#### General Requirements

All the lifting equipment and every part thereof, including all equipment used for anchoring or fixing such equipment, shall be in good mechanical condition and properly inspected, maintained and affixed with certification stickers.

PGI Systems will comply with the manufacturer’s specifications and limitations applicable to the operation of any and all cranes and derricks. Where manufacture’s specifications are not available, the limitations assigned to the equipment shall be based on the determinations of a qualified engineer competent in this field and such determinations will be appropriately documented and recorded.

Attachments used with cranes shall not exceed the capacity, rating or scope recommended by the manufacturer,

Rated load capacities and recommended operating speeds, special hazards warnings or instructions shall be conspicuously posted on all equipment. Instructions or warnings shall be visible to the operator while he is at his control station.

Any deficiencies shall be repaired or defective parts replaced, before continued use.

An accessible fire extinguisher shall be available at all operator stations or in cabs of equipment.

Belts, gear shafts, pulleys, sprockets, spindles, drums, fly wheel, chains or other reciprocating, rotating, or other moving parts or equipment shall be guarded if such parts are exposed to contact by employees, or otherwise create a hazard, guarding shall meet the requirements of the American National Standards Institute 815. 1-1958 Rev, Safety Code for Mechanical Power Transmission Apparatus.

Accessible areas within the swing radius of the rear of the rotating superstructure of the crane, either permanently or temporarily mounted, shall be barricaded in such a manner as to prevent an employee from being struck or crushed by the crane.

All exhaust pipes shall be guarded or insulated in areas where contact by employees is possible in the performance of normal duties.

Prior to work near transmitter towers where an electrical charge can be induced in the equipment or materials being handled, the transmitter shall be dc-energized or tests shall be made to determine if electrical charge is induced on the crane.

#### Holding the load

- a) The operator shall not be permitted to leave his position at the controls while the load is suspended.
- b) No person should be permitted to stand or pass under a load on the hook.
- c) If the load must remain suspended for any considerable length of time the operator shall hold the drum from rotating in the lowering direction by activating the positive controllable means of the operator’s station.



## Wire Rope Slings

### Construction of wire rope slings

Most wire rope slings are pre-formed in manufacture and in differing constructions, each one having its own particular use.

The construction can be wires in each strand, the number of wires in each strands, the number of strands in each rope,

the spiral of strands and wires, the main core metal (fiber or wire).

6 x 7 fiber main core (the rope has six strands each of seven wires, with a fiber main core).

Right hand ordinary lay — the wire spiral to the left, the strands spiral to the right. Left hands ordinary lay — the wires spiral to the right, the strands spiral to the left. These ropes are easily handled, and can be left with one end free to rotate. However, they will wear quickly because only a few crown wires are in contact with the bearing surface. Lang's lay — wires and strands spiral the same way.

These ropes have better wearing properties, but are harder to handle,

Both ends must be secured to prevent twisting.

Non — rotating — double layer construction, with left hand Lang's lay on the inner rope, And right hand ordinary lay on the outer rope or vice versa.

These ropes resist twisting and are ideal for long unguided Lifts as crane hoist ropes. Wire rope is measured by its diameter, which is taken from the top of any strand, to the top of the strand directly opposite.

### Maintenance

Correct lubrication of wire ropes is necessary for ensuring long life and good service. The wires in a rope bear against each other with high pressure when the rope is under tension, and it is very important to maintain a film of lubricant to reduce friction.

#### 22.2 Use

Gloves should be worn to handle wire rope.

Fiber core wire rope, of any grade, will be removed from service if it is exposed to any temperature in excess of 90 degree centigrade,

Non fiber core wire rope, of any grade if used at temperatures above 200 degree centigrade or below — 65 (minus 65> degree centigrade, will be subject to the manufactures recommendation.

#### 22.3 Storage

Store ropes in an even temperature to prevent deterioration from condensation, Keep the ropes clear of the ground, and coiled or rolled on a drum.

#### 22.4 Wire Rope Clamps

Clips must be fitted with the “U” bolts on the short end of the wire rope (“DEAD END”).

Stagger clamps at a distance of 6 times the diameter of the wire rope

A minimum of 3 clamps should be installed on all wire rope 1/ or better in size.

All clamps should be fitted on the same side (“U” bolt on the dead end)



## SECTION 23: MECHANICAL EQUIPMENT

PGI Systems shall only use mechanical equipment operators who have been properly trained in the procedures and functions relevant to the specific piece of equipment, which they will use. PGI Systems permit holding vehicles shall observe the posted speed limits. PGI Systems mobile heavy equipment operators shall be in possession of a valid License for that specific piece of equipment. PGI Systems mechanical equipment shall have guards fitted around all moving parts, installed before it arrives on site and maintained in position at all times while the equipment is operating. Guards removed for routine servicing or repair shall be replaced before the equipment is returned to service.

PGI Systems mechanical equipment shall be provided with the proper fire extinguishers, fully charged, and in good operating condition. All personnel must be familiar with its operation.

PGI Systems shall ensure that all the required work permits are obtained before any mechanical equipment is used in restricted areas.

PGI Systems shall ensure that where a heavy equipment operator cannot see all around his machine, a banksman/ flagman will be available to direct and assist the operator.

PGI Systems mechanical equipment shall be located so that exhaust fumes will not affect workers in the area, gasoline driven equipment shall not be used inside any building or similar confined space. PGI Systems equipment with driver/operator cabs shall be equipped with windshields and powered wipers, Cracked or broken windshields or windows shall be replaced. All cab glass shall be of safety glass or equivalent.

PGI Systems generator connections shall be made only by a competent electrician, who will ensure that the generator is properly grounded before use.

The generator engine side panels are designed to give access for repair and servicing only and must be closed at all times when the engine is running.

All machinery should be inspected before being placed in service and at regular intervals thereafter. A maintenance schedule should be established for each piece of equipment and strictly followed.

## SECTION 24: ABRASIVE BLASTING/PAINTS AND COATINGS

In addition to the usual hazards associated with construction activities, workmen engaged in surface preparation and paint application can be exposed to the dangers of fire, explosion, chemical fumes and burns, dust and insufficient air.

### 24.1 Flammability Hazards

#### Flammable Materials

In paint Systems, normally the organic solvent vapor is flammable and poses a fire hazard.

#### Flash Point

Flash point is defined as the lowest temperature at which a liquid will give off sufficient vapor to ignite when exposed to an open flame, the danger of fire exists virtually always where solvents are in use.

#### Flammable (Explosive) Limits (Definitions)

The lower and upper flammable (explosive) limits define the range of vapor/air concentrations that are potentially explosive. The lower flammable (explosive) limit (LEL) is typically in the order of 1-2% by volume, a level readily obtained in the area near opened solvent containers or near the nozzle of a spray painting gun in operation.



## **Fire Precautions**

PGI Systems shall ensure that no painting will be carried out within 25 feet of potential ignition sources, e. g. welding/flame cutting, designated smoking areas, or spark emitting tools.

PGI Systems shall ensure all electrical equipment is de-energized before spray painting to eliminate explosion hazards, e.g. switches, panel boards, electrical motors and associated equipment. PGI Systems shall ensure the use and storage of flammable paints and solvents are kept to restricted areas, which shall be suitably marked, with the appropriate warning signs.

PGI Systems shall store flammable paints and solvents in a special building, or in a sun shelter. PGI Systems shall ensure that an adequate number of fire extinguishers are located at the work and storage areas, as well as maintaining those areas as clean as possible.

## **24.2 Paint Associated Hazards**

Many paint ingredients are harmful to human beings, most can tolerate these materials over a short period of time and in small quantities. Some people however are immediately sensitive to some ingredients and almost everyone will be affected to some degree if exposed long enough. There are two major groups of irritants, toxic materials and dermatitis or skin irritating materials.

### **Toxic Materials**

Solvents are the most abundant toxic materials found in paints and coatings. Dermal materials irritate the skin, which if left untreated can cause infection or ulceration. Solvents tend to dissolve and remove natural oils from the skin, certain binders also may irritate the skin, such as epoxy resins. Other chemicals used in paint related work should be handled with care, e.g. paint removers, acid and alkaline cleaners.

### **Prevention of Health Hazards**

PGI Systems shall ensure that a copy of the appropriate Materials Safety Data Sheet (MSDS) is obtained for all materials used, is studied closely and the required safety precautions implemented.

The following precautions should minimize health hazards:

PGI Systems shall identify and seal all toxic and dermatitis materials.

PGI Systems shall adequately ventilate all painting and coating areas, and provide approved respiratory equipment where necessary. All workmen spray painting shall wear cartridge respirators or airline hoods depending on the hazards of the paint.

PGI Systems shall minimize dust during surface preparation and shall ensure employees wear the appropriate personal protective equipment for the work being carried out

PGI Systems shall instruct all employees to avoid touching any part of the body, to wear protective equipment (gloves, body suits etc.) when handling dermal materials, and for all employees involved in painting or coating to thoroughly wash up before eating and at the end of the day.

PGI Systems shall ensure that employees working with paint removers containing toxic solvents are provided with respirators or ventilation control

There should be proper ventilation of painting and coating areas.

## **24.3 Surface Preparation**

Equipment and materials that are used in surface preparation for painting and coating can be hazardous if used carelessly. There are several methods for preparing surfaces and these include:

Blast cleaning where abrasives in the form of sand, iron shot, grit, slag etc. are used.



Blast cleaning where high- pressure water or steam is used

Hand tool or portable power tool cleaning which includes grinders, sanders, rotary wire brushes, impact tools, and chisels or hammers.

Chemical cleaning using paint removers, solvents, alkali, acids or detergents.

### **Abrasive Blast Cleaning**

PGI Systems abrasive blast-cleaning employees shall wear an air supplied protective hood approved for the type of abrasive material being used and any other toxic contaminants (lead, zinc etc.) that are present.

PGI Systems abrasive blast cleaning assistants who could be exposed to sand dust or toxic contaminants, shall be provided with self contained or air supplied breathing apparatus.

### **Hand tool and power tool cleaning,**

Tools shall be correctly selected for the purpose, operated and maintained to the manufacturer's instructions.

Particular attention should be paid to eye and face protection to guard against flying particles, and ear protection, either ear plugs or ear defenders should also be provided to prevent long term hearing loss.

Suitable respirators shall be used if contaminant levels exceed permissible exposure limits PEL.

Extreme care should be taken where tools have the ability to create sparks.

### **General Safety In surface Preparation**

PGI Systems shall ensure that all operators are instructed and trained in the correct use of cleaning agents and equipment.

PGI Systems shall ensure-that all surfaces other than those being cleaned are protected from damage due to cleaning operations

Where PGI Systems operators are using equipment such as blast cleaners or power tools they must have a safe footing, especially when operating on scaffolding.

All PGI Systems blast guns and power tools must have automatic shut-off controls (dead man's handle) to stop the flow of abrasive and propellant if for any reason the operator releases the control switch.

PGI Systems shall at all times follow the equipment manufacturer's instructions on protective guards.

PGI Systems shall ensure adequate ventilation is always provided when using solvents in confined spaces as the fire and explosion hazard always exist.

## **SECTION 25: EMPLOYEE SAFETY ORIENTATION PROGRAM**

The purpose of the Employee safety orientation program procedure is to ensure that all PGI Systems employees and visitors have at least the basic knowledge of safety expectations and practices required on any project. The Customer's orientation program will be the guiding document for site introduction. Before being allowed onto the project site to commence work all PGI Systems employees and visitors shall attend the project Safety Orientation Program as appropriate. The content of the documented Safety orientation will consist of the current information and PGI Systems employee or visitor needs to protect himself and those around him from injury, as well as protecting PGI Systems and owner property on the project site.



## Introduction

By PGI Systems safety representative, project safety concept “ZERO LOSS TIME”.

Detailed Emergency Evacuation Procedures and routes to safe assembly points.

Detailed explanation of all site safety rules and procedures.

Steel toe safety boots meeting the requirements will be worn by all employees at all times on worksite.

An approved hard hat will be worn by all employees at all times on the project site.

Safety glasses with side shields as a minimum will be worn by all employees at all times on the project site, additional eye protection shall be worn for other specific tasks and operations.

When working in high noise areas, where noise levels are at or above 85 decibels hearing protection, either ear plugs or ear defenders will be worn.

Smoking shall only be permitted in designated smoking areas

Cigarette lighters or boxes of matches shall not be carried into restricted areas.

When working at height above 1.6 meters, body harnesses and shock absorbing lanyards, tied off 100% shall be worn by all employees. Where required, extension lanyards will be used ensuring employees are not allowed to strike objects should they fall.

All electrical powered tools and equipment shall be operated through a Ground Fault Circuit interrupter (GFCI).

All employees are responsible for their work area cleanliness (Housekeeping) at all times

Pre — task meetings shall be held by supervisors and foremen prior to a job being conducted.

Where a new or especially hazardous activity is to be undertaken, a Job Safety Analysis shall be done by the Supervisor and the foreman, and discussed with all employees involved on that activity.

All employees shall adopt a “Safe Attitude” while at work.

All accidents/Incidents (Near Misses) shall be reported immediately to the supervisor.

PGI Systems employees shall attend documented weekly toolbox talks given by supervisors..

PGI Systems supervisors and Foreman shall ensure that Job Safety Analysis is carried out and communicated to all concerned employees. Safety Task assignment is conducted by PGI Systems foreman to the crew

All employees shall immediately notify PGI Systems Management, Sub contractor Management of anything they see or hear which may be detrimental to their safety or that of any other employee or facility.

PGI Systems Vehicle Drivers shall comply with all local government traffic Regulations and requirements.

PGI Systems Drivers shall be in possession of a valid local government Driving License.

PGI Systems Drivers shall observe posted Speed limits.

PGI Systems Drivers and passengers in vehicles where seat belts are available shall wear them at all times when the vehicle is in motion.

Where seat belts are not available (i.e. Buses), then only the drivers shall wear a seat belt.

No employee shall take a rest break or sleep under any vehicle.

No work shall be undertaken without first making sure that a work permit is, or, is not required.

If required, work permits shall be kept at the work location readily available for inspection while the work is in progress.

PGI Systems Work permits are required for the following activities:

- Working with Toxic materials (s)
- Entry into Confined Spaces
- Hot work (for sources of ignition in the vicinity of flammable products)



- Any work in operational/functioning facilities.
- Ionizing Radiation
- Lockout! Tag-out situations
- All tie-ins to existing facilities

All employees shall comply with the conditions of work permits without fail.

Vessel entry is prohibited without a confined space entry permit, which will only be issued after special testing has been carried out.

All employees will be made aware of the hazards prevalent in restricted/operational areas.

All safety instructions will be followed without fail.

All employees will be provided with clear and concise instructions as appropriate.

Horseplay and practical jokes will not be tolerated..

**Everyone** is responsible for their own safety and the safety of the people around them.

## SECTION 26: TRANSPORTATION

This section outlines the procedures and responsibilities for preventing motor vehicle accidents. In addition, it sets the standards for driver performance, responsibility, and vehicle maintenance expected of all PGI Systems drivers.

All drivers are expected to drive in a defensive manner, be prepared to yield the right of way to others, even if you believe you are in the right and maintain control of the vehicles at all times, PGI Systems shall only employ qualified personnel as drivers of motor vehicles.

**IT IS THE RESPONSIBILITY OF THE DRIVERS SUPERVISOR, FOREMAN, OR SUPERINTENDENT** to verify the driver's credentials.

It is generally considered that the local government rules apply with respect to drivers licenses and that all employees must possess a valid license for the country in which they are working. PGI Systems drivers are responsible to ensure that their vehicles are safe to operate with daily inspections before starting the day's work.

PGI Systems drivers are responsible to ensure that their vehicle is serviced and repaired when scheduled or required.

PGI Systems drivers are fully responsible and accountable for the mechanical and physical condition of his vehicle. The driver must report immediately any damage which is beyond normal wear and tear.

PGI Systems drivers are responsible for transporting materials safely, ensuring loads are properly secured and tied down and that the load does not exceed the vehicle manufacturers design load capacity. PGI Systems drivers and passengers shall wear seat belts at all times while the vehicle is in motion. PGI Systems drivers shall not transport more passengers than the number of seat belts provided in the vehicle.

PGI Systems drivers shall not transport passengers in the rear of pickup trucks or on trailers. PGI Systems drivers shall comply with all local government traffic signs and obey any flagman.

PGI Systems drivers shall not exceed the posted speed limits on public highways or at the work —site locations, and shall reduce their vehicles speed in poor road or weather conditions, e.g. fog , rain sand storm and especially at night time.



## SECTION 27: MATERIAL HANDLING

### **Manual material handling**

All materials will be properly stacked and secured to prevent collapse, falling or sliding.

To provide access in emergency situations, all aisles stairs, passageways and fire fighting equipment shall be kept clear and free from obstructions.

When manually lifting and carrying materials use the correct technique.

### **Fork Lift Material Handling**

The hazards associated with forklift operation and maintenance which cause personal injuries and or damage are numerous.

The main causes are excessive speed, overloading or exceeding operational limitations, blind corners, unqualified operators, re-fuelling or battery changing operations or explosion caused by forklifts operating in a hazardous area or hazardous atmosphere.

Each supervisor with forklifts operating in his area shall be responsible for ensuring that operators are trained, certified, that inspections and preventative maintenance are conducted, that operators are made aware of the hazards involved in his area and that the operator understands the basic guidelines for fork lift safe operation.

The forklift operator shall be the only person allowed to ride on the forklift.

The speed limit for forklifts shall be 10 kph. Under normal operating conditions, and less in adverse abnormal operating conditions (congested area, uneven ground etc.)

## SECTION 28: FIRE PREVENTION

PGI Systems shall follow all the client plant organization guidelines and instructions for fire prevention, control and containment.

All portable fire extinguishers shall be inspected monthly with fire extinguisher tags placed upon for identification.

Smoking is not allowed in the Plant areas, smoking shall be allowed only in designated ‘smoking shelters’.

Cooking is not allowed on any site. Protection of welding equipment and people during operation is mandatory.

Multiple outlet plugs from single outlet points are not allowed.

Bare wires shall not be inserted into power socket outlets.

Diesel fuel shall be kept in approved tanks separated by no less than 10 meters. From any building or equipment, Anti-static grounding shall be installed for vehicle re-fuelling, the tank shall be labeled with its contents by a sign strategically placed denoting “DANGER NO SMOKING” In re-fuelling areas multipurpose ABC fire extinguishers shall be available for fire protection.

All areas shall be kept free and clear of flammable waste.

PGI Systems vehicles/mechanical equipment shall be equipped with fire extinguishers having a rating of 2 BC or higher.

Material storage areas shall be established with adequate clearance between walls, fences, and materials, and aisles between materials to allow for cleaning, fumigation, insecticide spraying and fire fighting.



## **Area Fire Wardens**

Each subcontractor's craft supervisor shall be the fire warden of his area of operation for the hot work/open flame activities and is responsible for:

- The implementation of the fire prevention action.
- The implementation of all the fire prevention needs of the work permits.
- The reporting of all incidents of fire in his working area.
- The control and containment of the fire and is required alerting the plant fire brigade, when necessary,
- The co-ordination of his team to assist the plant fire brigade, if required.

## **SECTION 29: SITE INSPECTIONS**

### **Purpose**

Numerous injuries are caused by individuals using poorly maintained tools and equipment.

In order to eliminate the occurrence of incidents and injuries related to worn or damaged tools or equipment a monthly inspection will be conducted by a competent person to ensure that all are in good working order and suitable for the tasks at hand. PGI Systems should submit a record of all tools and equipments inspected to Customer's HSE Dept.

In addition, equipment and tools should likewise be inspected by the individual user prior to each use. PGI Systems will also ensure employee compliance with the Project safety requirements by performing a series of safety inspections.

The results of these inspections will be the basis for a continual effort to improve the quality of safety and productivity on the Project.



## Geographic Coverage

PGI Systems is able and willing to design, supply and commission any instrumentation system for any project on a worldwide basis. We have facilities strategically located around the globe that are tasked with either sales, client liaison, project management, engineering, fabrication and any or all of these aspects of a complete project.

These facilities are located in the following countries:

Al Khobar, Saudi Arabia	Sales, Project Management, Engineering, Fabrication
Jubail, Saudi Arabia	Fabrication
Manama, Bahrain	Sales
Singapore	Sales
Bangkok, Thailand	Sales, Project Management, Engineering
Mumbai, India	Sales & Engineering
Abu Dhabi, UAE	Purchasing and Sales
Aberdeen & Norfolk, UK	Purchasing and Sales
Perth, Australia	Sales and Project Liaison

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