

OIL & GAS DEVELOPMENT COMPANY LIMITED



TENDER ENQUIRY NO. PROC-SERVICES/CB/P&P-4786/2020

**HIRING OF SERVICES FOR DISMANTLING, RIGGING,
INSTALLATION & COMMISSIONING OF AG UNIT & ITS
AUXILIARIES FROM PIRKOH TO LOTI GAS FACILITY**

Note:

Bid bond of PKR 850,000/- (Pak Rupees Eight Hundred Fifty Thousand Only) must be submitted with the technical bid. Please see tender documents for further detail.

The master set of tender documents (services) uploaded on OGDCL website (www.ogdcl.com) is the integral part of this TOR.

TERMS OF REFERENCE (TOR)



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COMPANY LIMITED**

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1 INTRODUCTION

Oil & Gas Development COMPANY Limited (OGDCL), hereinafter referred as COMPANY owns and operates Pirkoh Gas Field located in Dera Bugti Balochistan. The Pirkoh Gas Field is located approximately 3Km away from Pirkoh Air Strip. OGDCL intends to relocate redundant equipment from Pirkoh Gas Field to Loti Gas field located approximately 48Km away from PirKoh Gas facility.



Route from Pirkoh Gas Field to Loti Gas field

The route from Pirkoh to Loti passes through Dera Bugti, which is a sensitive area from security and mobility perspective. Pirkoh and Loti plant both are located on the mountainous terrain and high altitudes with a valley area of Dera Bugti in between. The elevation of Pirkoh facility is approximately 1100m from Main Sea Level (MSL), while Loti facility is located at a slightly lower elevation than Pirkoh with overall elevation of 886m above MSL.



Loti Gas Facility image plan view



Pirkoh Gas Processing Facility

2 DEFINITION

COMPANY / OWNER	Oil & Gas Development COMPANY Ltd. (OGDCL)
CONSULTANT:	Petrochemical Engineering Consultants (PEC)
CONTRACTOR:	“CONTRACTOR” means the person or persons, firm or Proprietor whose proposal has been accepted by the COMPANY for construction, commissioning, performance testing and includes the CONTRACTOR's representative(s), successors and permitted assignees.
VENDOR/SUPPLIER:	The organization, firm or agency order for the supply of equipment and or material has been placed.

3 OBJECTIVE

The objective of this project is to dismantle and relocate redundant equipment at Pirkoh Gas field to Loti Gas Field.

4 EQUIPMENTS TO BE ADDRESSED UNDER THIS SCOPE

Enlisted below are the units to be relocated from Pirkoh.

1. Waukesha Gas Engine 16V275 GL+ Radiator
2. Ariel Compressor JGZ4+Auxilaries
3. SmithCo Cooler
4. Power Generator/Engine
5. Inlet/outlet different pipes of different diameters
6. Steel Structure shed, Murphy Panel Canopy & Misc Supports & Electrical items

5 CODES, STANDARDS AND SPECIFICATIONS

5.1 GENERAL

The latest edition and published addenda of the following publications in effect on the date of Contract Award are a part of this Specification. CONTRACTOR shall identify

where applicable the codes that are being used for designing, fabricating, inspecting, installing, maintaining and testing as specified.

5.2 PRECEDENCE

It is project policy to adopt International and Industry Standards. Wherever necessary, Pakistan standards and regulatory requirements must be incorporated into project specifications.

Should there be any conflict between this document, the requisition, drawings, specifications, codes and standards or lack of clear definition as to the applicability of any specification or standard, this will be identified by CONTRACTOR in writing to the COMPANY immediately for resolution/clarification before proceeding.

In general, the order of precedence for all scope of work shall be:

- Project Specifications
- Drawings
- International/National Codes and Standards
- Referenced Industry Codes and Standards

In the event of a conflict between the referenced standards, the most stringent shall apply. It shall be the CONTRACTOR's responsibility to satisfy the technical and certification requirements of the COMPANY and the local Pakistan authorities.

CONTRACTOR shall be responsible for raising a specification waiver request for COMPANY approval when CONTRACTOR requests to deviate from the enclosed specifications, drawings and other documents of this Contract.

5.3 INTERNATIONAL, NATIONAL AND LOCAL STANDARDS

The codes and standards listed as following are not exhaustive and should be used as a guide to the codes and standards COMPANY would expect CONTRACTOR to use.

The CONTRACTOR shall be responsible for implementation of any regulations concerning the process design, detail design, engineering, procurement, manufacturing and testing of equipment, which are mandatory by Pakistan Law, decree, code or regulations. This shall include compliance with relevant Pakistan standards. CONTRACTOR shall be responsible for ensuring that the Work also meets Pakistan codes or standards that local permitting may require.

MECHANICAL

AFBMA	Anti-Friction Bearing Manufacturer Association
OSHA	Occupational Safety and Health Administration
AGMA	American Gear Manufacturers Association
AISC	American Institute of Steel Construction
AISE	Association of Iron and Steel Engineers
AISI	American Iron & Steel Institute
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
API	American Petroleum Institute
ASHRAE	American Society of Heating, Refrigeration and Air conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society of Testing and Materials
ATC / PTC	Acceptance Test Codes / Performance Test Codes
AWS	American Welding Society
HIS	Hydraulic Institute Standard
ISO	International Organization for Standardization
NACE	National Association of Corrosion Engineers
NFPA	National Fire Protection Association.
SSPC	Society of Protective Coating
TEMA	Tubular Exchanger Manufacturers Association
UL	Underwriters Laboratories
WRC	Welding Research Council
UFC	Uniform Fire Code
HEI	Heat Exchangers Institute
	Local Pakistani standards and Regulations (As Applicable)

CIVIL

	American Society for Testing and Materials	
	ASTM D422	Standard Test method for particle size analysis of soil.
	ASTM D1557	Test Method for Laboratory Compaction Characteristics of Soil using modified effort
	ASTM D2167	Standard Test Method for density and unit weight of soil in place by the Rubber Balloon method.
	ASTM D2487	Classification of soils for Engineering purpose.
	ASTM D2922	Standard Test methods for density of soils and soil aggregate in place by Nuclear methods
ASTM	ASTM D3740	Standard Practice for minimum requirements for agencies engaged in the Testing and for Inspection of soil and rock used in Engineering design and construction.
	ASTM D4318	Standard Test method for Liquid limit, Plastic limit and Plastic index of soils.
	ASTM 4253	Standard Test methods for maximum index density and unit weight of soils using vibratory table
	ASTM 4254	Standard Test methods for minimum index density and unit weight of soils and calculation of relative density
	ASTM C33	Standard Specification for Concrete Aggregate
	BS	British Standards BS 6031

ELECTRICAL

		National Fire Protection Association
	NFPA 30	Flammable and Combustible Liquids Code
NFPA	NFPA 70	National Electrical Code (Chapter 5)
	NFPA 497	Classification of Flammable Liquids, Gases, or Vapor and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas
		American Petroleum Institute
API	API RP 500:	Recommended practice for classification of Locations for Electrical Installations at Petroleum facilities classified as Class I, Division 1 and Division 2
	API RP 505:	Recommended practice for classification of Locations for Electrical Installations at Petroleum facilities classified as Class I, Zone 0, Zone 1 and Zone
		American National Standards Institute
ANSI	ANSI C2	National Electrical Safety Code - Section 127 Underwriters Laboratory (UL) standards
European Standards	IP-15	Institute of Petroleum : Area classification code for petroleum Installations – part 15

International Electro technical Commission

IEC	IEC 60079-	Classification of Hazardous Areas – Explosive Gas Atmospheres
	IEC 60079-	Classification of Areas – Combustible Dust
	IEC 60079-	Electrical Installations in Hazardous Areas

PIPING

American Petroleum Institute

API	API 600,	Steel Gate Valves - Flanged and Butt-welding ends
	API 602,	Compact Steel Gate Valves – Flanged, Threaded Welding and extended-body ends.
	API 594	Check Valves: Wafer and Wafer-lug, and double flanged type
	API 6D,	Specification for pipe line valves (Gate, Plug, Ball and Check Valves).
	API 6FA,	Specification for fire test for Valves. API 598, Valve

American Society of Mechanical Engineers

ASME	ASME	Boiler and Pressure Vessel Code, all applicable sections.
	ASME B16.9,	Wrought Steel Butt-welding Fittings.
	ASME B16.11,	Steel Socket Weld Fittings.
	ASME B16.20,	Metallic Gaskets for Pipe Flanges - Ring Joint, Spiral Wound.
	ASME B16.34	Valves - Flanged, Threaded and Weld End.
	ASME B16.5,	Steel Pipe Flanges and Flanged Fittings.
	ASME B31.3,	Process Piping.
	ASME B36.10M,	Welded and Seamless Wrought Steel Pipe
	ASME B36.19M,	Stainless Steel Pipe

ASTM American Society of Testing and Materials

AWS American Welding Society

British Standards

BS	BS 1868,	Steel Check valves (Flanged and Butt-welding ends)
	BS 1873,	Steel Globe and Globe stop and Check valves (Flanged and Butt-welding ends).
	BS 5351	Steel Ball valves
	BS 5352,	Steel wedge Gate, Globe and Check valves (50 mm and smaller)
	BS 6755,	Testing of valves Part 1: Production pressure testing requirements
	BS 6755,	Testing of valves Part 2: Specification for Fire-type testing requirements

ISO International Organization for Standardization

PAKISTAN STANDARDS

Pakistan Oil & Gas Regulations 1974
Pakistan Electricity Act 1910
Pakistan NEQS Standards
Pakistan Standard 1401:1978 and Amendment No. 1, Nov 1985 (LPG Product Specifications)

6 SCOPE OF WORK

6.1 GENERAL

The equipment including Gas engine, generator, compressor and cooler are currently installed at Pirkoh Gas facility, Baluchistan and are needed to be relocated to Loti Gas facility approximately 48Km away from Pirkoh Gas facility

This document defines the scope of works to be performed by the CONTRACTOR in relation with the project.

CONTRACTOR shall assume full responsibility to complete the Works in compliance with Project's requirements, applicable design codes, standards, referred specifications and other applicable local regulations.

In case where work activities (in partial or complete) of the contracted works are sub-contracted by the CONTRACTOR, it is the CONTRACTOR's responsibility to ensure that the complete packages and works shall comply with COMPANY requirements and such sub-CONTRACTORS are to be approved by the COMPANY.

The WORKS shall include Dismantling, Rigging and Re-installation works, tagging, loading, off-loading, installation, pre-commissioning, commissioning support including but not limited to all structural, piping, mechanical, civil foundations & associated works, instrumentation and electrical works.

The description of the services is given as a minimum, shall not be considered as exhaustive definition and does not relieve the CONTRACTOR from their duty to provide competent services consistent with the nature of the Project.

6.2 BATTERY LIMITS

The project scope is divided into two work areas;

1) Dismantling of Equipment

Complete dismantling of equipments under this scope at Pirkoh Gas Facility, rigging with best safety practices, and unloading at Loti Gas Facility.

2) Installation and commissioning of Equipments

Installation and commissioning of relocated Equipments at Loti Gas facility

6.3 DISMANTLING OF EQUIPMENT AT PIRKOH GAS FACILITY

The Dismantling scope shall include but not limited to Dismantling, Rigging, Packing, Material Handling, and Storage of Compressor Package.

It will include but not limited to the following:

- Equipment / Skids
- Piping Spools
- Pipe Supports Structure
- Electrical & Instrument cables, panels and other accessories required for plant commissioning at Loti.

The details scope of works are defined are as under;

6.3.1 Equipment/Skids

Equipment and skids scope includes equipments and skids specified as under:

1- Waukesha gas engine:

The Waukesha Gas engine weighs approximately 35 tons and it is to be dismantled at Pirkoh Gas facility along with Radiator with approximate weight of 5 Tons.

2- Ariel compressor JGZ4:

Ariel compressor JGZ4 weighs approximately 22 tons, it is to be dismantled along with the auxiliaries weighing 3 tons.

3- Smith Co Cooler:

Smith Co cooler weights approximately 12 tons and will be dismantled at Pirkoh Gas processing Facility.

4- Power Generator/Engine:

Power Generator weights approximately 15 tons and will be dismantled at Pirkoh Gas processing Facility

CONTRACTOR to arrange the experienced riggers and tools for the lifting of all equipment. Rigging studies to be provided by CONTRACTOR to COMPANY for approval. CONTRACTOR to arrange all the manpower / equipment for confine space entry i.e. but not limited to 24 Volt DC, pneumatic blowers, safety attendants etc. CONTRACTOR should assess the site first from dismantling perspective, to identify if there are any on-site constraints that may present difficulties during dismantling and relocation of the skids.

6.3.2 Steel Structures

The CONTRACTOR shall be responsible to complete Dismantling & rigging of all steel structures including pipe support structure and structure sheds .The CONTRACTOR must assess the existing steel structure with respect to connections, whether the connections in the structures are welded or bolted. If the structure is welded, cutting maybe needed for structure dismantling. The steel structure that is to be relocated includes but is not limited to pipe support structure, cable tray supports and platform structures. The complete weight of steel structure weighs around 11 tons approximately ad includes pipe support pipe support structure and canopy shed

6.3.3 Piping Work

Piping work included in Relocation Package is mainly comprises of pre-fabricated piping spools. The total length of piping spool is 800 feet.

6.4 RELOCATION AND DISMANTLING PROCEDURE

6.4.1 General Tagging Procedure:

- Before start of dismantling activity, ensure that all the skids / equipment should be marked with tags.
- Piping spool / valve / control valves /RO's / FE's tagging should be marked as per defined tagging procedure specified in **Section 6.5** below.
- Identified spool / valve / control valve / RO's / FE's tag no. should be punched on aluminum plate and tied with the component with wire.
- Identified spool / valve / control valve / RO's / FE's tag no. to be marked with permanent paint marker or mark with paint by using the stencils.

6.4.2 Pre – Relocation Verification:

- Latest As-built drawings shall be compared with both actual site situation as well as with standard relocation package for consistency. Any change/discrepancy shall be duly notified to OGDCL for further instructions.
- Prior to start of relocation it is to confirm that all tagging is completed in all respect .i.e. through metallic tags and with paint / permanent paint marker and also the color band are marked for system verification where required (mainly piping spools).
- It is to verify that scaffolding is being installed at all necessary locations where required.
- Prior from dismantling it must be confirmed that system has been depressurized and isolated. Also all electrical connections are isolated and disengaged.
- Prior to start the relocation, pictures and videos to be recorded in order to facilitate its reinstallation.

6.4.3 Relocation of Skid and Equipment's:

- Skid / equipment relocation; equipment relocation sequence to be followed or if required to be amended as per new site condition.
- Prior to dismantling of equipment, remove all the inlet / outlet piping connections, equipment to equipment interconnecting spools, all electrical / instrument cable connections to be removed, all installed jewelry which is susceptible to damage during transportation shall be removed, also remove the platforms, stairs and railing which may cause hindrance during transportation.
- During the dismantling of nozzle connections metallic / wooden ply / plastic blind flanges to be installed on each nozzle.
- During transportation or stacking appropriate no's of saddles (as came earlier during shipment) and leashes should be used.
- Proper lifting gears to be utilized during the lifting of equipment and skids.
- All dismantled fragile items should be packed equipment wise on cart boxes / wooden boxes with enough soft packing.
- All hardware items i.e. stud bolts / machine bolts should be stored equipment wise on wooden box / jute bag with inside and outside metallic equipment name with nozzle no. tagging.
- Equipment weight verification, follow the skid weights as specified in scope
- Equipment's ladders, platforms, railing should be tagged before dismantling and transported together with equipment.
- Contractor shall develop equipment dismantling sequence list.

- During the loading and unloading, approved lifting plan shall be followed that should be re-reviewed for any required change according to prevailing site conditions.
- Journey Management shall be developed before transportation of equipment.
- For the erection sequence there are two ways to follow:
- Prior to start the lifting of equipment, equipment to equipment distances shall be considered to avoid any cutting of piping.

6.4.4 Relocation Of On Skid / Off Skid Piping:

- Prior to start of dismantling of piping to confirm that systems are depressurized, drained and flushed to avoid any unforeseen disturbance.
- All flange to flange spools to be given the system wise unique ID which will be followed during dismantling and reinstallation.
- All spools to be marked flange to flange up to 40' or less to avoid any hindrance on transportation during relocation, some spools shall be marked to cut during dismantling but it should be decided during transportation that the cutting is required or not? If required then approval shall be taken from COMPANY. All control valves, instrument valves, LT's & LG's, PSV's should be packed on wooden boxes with inside wooden supports to avoid any damages.
- The entire stud bolts to be segregated isometric wise and system wise and to be stored in wooden box or jute bags with inside and outside metallic line no. tagging.

6.4.5 Relocation of Platforms / Monkey Ladders and Walkways / Cross Overs:

- All platform / monkey ladder shall be marked with unique ID on mechanical plan and these platforms / monkey ladders should be dismantled and reinstalled according to plan drawing.
- Platform / monkey ladders dismantling and reinstallation priority should be subjected to equipment priority.
- All crossovers / walkways shall have unique I.D marked on mechanical plan and these crossovers / walkways will be dismantled and reinstalled according to plan drawing.

6.4.6 General Items:

- All piping and equipment nozzles gaskets to be arranged as per project inventory / BOM prior to start the relocation to avoid any unforeseen delay. 10% additional stud bolts to be arranged for each size due to threads damage chances during dismantling and re-installation.

- Any item (steel section, tray support etc.) found damaged/cracked/rusted shall be notified to OGDCL's site representative. Approval shall be sought after, before lifting for such items.

6.5 TAGGING PROCEDURE

6.5.1 MECHANICAL

a. Equipment & Skids

Equipment & Skids will to be identified with the existing tags defined under the Compressor Package.

b. Skids Interconnecting Piping / Off-Skid Piping

(Service – Spool No. – Isometric No. – Line Size – Line No)

Example: FG-SP01-48018-4"-03061

- FG – Fuel Gas System
- SP01 – Spool No. each spool of the system will have unique ID. Numeric serial numbers will be followed by system not by isometric.
- 48018 – Isometric number
- 4" – Pipe dia / Line Size
- 03061 – Line No.

Note: Any spool which is out of transportation limit will be provided with an additional FW and both spools will be provided a prefix "A" and "B" with spool numbering.

c. Valve Marking

(System – Valve Type with Numeric ID – Valve Size - Isometric No.)

Example: FG-VBF01-4"-48018

- FG – System
- VBF01 – Flanged Type Ball Valve with unique numeric ID
- 4" – Valve Size
- 48018 – Isometric No.

Note: This Identification will be embossed on steel plate and will be tied with relevant components.

6.5.2 INSTRUMENTATION

a. Instrument Tagging For Equipment

(Instrument Tag – Equipment Tag)

Example: TW0398 – V03113

- TW0398 – Thermowell tag as defined for BAP Project
- V03113 – Equipment Tag of Inlet Scrubber Skid

b. Instrument Tagging For Piping

(Instrument Tag – Isometric No. – Spool No.)

Example: PCV03126 – 03042 –SP02

- PCV03126 – Instrument tag as defined for BAP Project
- 03042 – Isometric last Number
- SP02 – Pipe spool number

6.5.3 ELECTRICAL

a. Cable Tray Marking:

(Cable Tray – Size Designation – Area – Section No.)

Example: CT (E/I) – X – PR – 01

- CT (E/I) – Cable Tray E (for electrical) and I (for Instrument or control)
- X- Cable tray Size, different designation will be give like A is of 900 mm size
- PR – Pipe Rack Area
- 01 – Section No.

b. Cable Marking/ Tag

All cables shall be marked with the cable tags along with cubical and E-house numbering.

Example: P-0301-EH-Q1

- P-0301 – Cable tag as defined for BAP project
- EH – E-House Balance of Plant
- Q1 – Cubical No.

c. Earthing Material

Earthing material shall be tagged with earth rod numbers. Area wise earth material can also be marked/ tagged.

6.6 INSTALLATION OF EQUIPMENTS AT LOTI GAS FIELD

The Installation scope shall include but not limited to Off-loading, Installation and Commissioning of equipments at Loti Gas Field

It will include but not limited to the following:

- Equipment / Skids
- Piping Spools
- Pipe Supports Structure
- Electrical & Instrument cables, panels and all other accessories.

The details scope of works are defined are as under;

6.6.1 Equipment/Skids

During Installation, equipment and skids scope include all equipment and skids of compressor package with complete assembly as follows;

- 1) Waukesha Gas Engine with total weight of 40 tons
- 2) Ariel compressors with total weight of 25 tons
- 3) Smith Co cooler 12 tons
- 4) Power Generator/Engine 15 tons

CONTRACTOR to arrange the experienced riggers for the installation of all equipment. Rigging studies to be provided by CONTRACTOR to COMPANY for approval. CONTRACTOR to arrange all the manpower / equipment for confined space entry i.e. but not limited to 24 Volt DC, pneumatic blowers, safety attendants etc.

6.6.2 Steel Structures

The CONTRACTOR shall be responsible for complete erection of all steel structures for pipe supports, canopy shed and miscellaneous supports weighing around 11 tons

6.6.3 Piping Work

Piping work included in Installation Package mainly comprises of relocated piping spools with approximately 800 feet length

6.6.4 Commissioning

CONTRACTOR shall be responsible for the commissioning of equipments under this scope at Loti Gas field utilizing expert professionals of their respective domains such as Process, Electrical, Instrumentation and Mechanical.

7 GENERAL REQUIREMENTS

CONTRACTOR's Works shall include the following:

1. Obtaining all required licenses, approvals, and permits for the Works;
2. Establishing Worksite safety rules and providing a Safety Officer and staff for the Works. This will include erecting temporary or permanent fencing to safeguard the Worksite from the entrance of unauthorized parties;
3. Providing CONTRACTOR Representative, temporary Works, Temporary Facilities and other facilities required for the Works;
4. Providing and maintaining accommodation, lodging and transportation for the CONTRACTOR's Personnel, Subcontractors, and Vendors;
5. CONTRACTOR shall provide and maintain in-compliance with local regulations, living accommodation, including utilities and related facilities and services for all resources directly or indirectly employed by it;
6. Managing, coordinating and supervising the Works of CONTRACTOR, Subcontractors, and Vendors to ensure Works are performed on schedule and in accordance to quality and safety requirements, including preparing detailed schedules for the Works accordance with the Project and Construction Schedules, regular monitoring of this schedule and making appropriate adjustments to obtain efficient usage of resources;
7. Providing schedule and progress reporting in accordance with the requirements of the Contract;
8. Providing and implementing a quality assurance plan and developing and implementing quality control procedures;
9. Maintenance of all temporary facilities required for the Works. CONTRACTOR is responsible to provide temporary access road to Site for use during period;
10. Maintaining records in formats to be submitted for COMPANY;
11. Ensuring timely mobilization of Vendors' / Sub-Vendors' and Subcontractors' representatives and/or any specialists, and their retention at Worksite for the required duration;
12. Providing site QA/QC and inspection and testing services for the Works. This shall include,

but not be limited to structural, welding, piping, rotating equipment, mechanical, electrical, instrument and painting/coating inspections;

13. Provision of storage, conservation, operation and maintenance of erection equipment, tools, rigging, scaffolding, consumable materials etc., inclusive of inspection of, and obtaining the appropriate approvals for use of all tools and equipment;
14. Receipt, inspection, storage, conservation, handling and administration of all equipment and materials at the Worksite;
15. Protection of all adjacent properties, facilities and environment against damage by erection activities;
16. Protection of equipment and materials and (partially) erected facilities against damage or deterioration by meteorological conditions;
17. Preparing and performing good housekeeping practices and procedures at all areas, including but not limited to the following:
 - ▶ Prevention of undue waste build-up;
 - ▶ Keeping areas tidy;
 - ▶ Keeping roads clean and emergency exit clear;
 - ▶ Containing dust-producing activities.

7.1 SITE MOBILIZATION

CONTRACTOR shall mobilize the management team, dedicated for the work, to Worksite in a progressive manner.

CONTRACTOR's team will include, as a minimum:

1. Project Manager;
2. Engineers, Supervisors (Discipline-wise);
3. QA/QC Engineers;
4. Safety Officers;
5. Stores/Materials Controller;
6. Administration Officer;
7. Planning Engineer;
8. Commissioning Support Engineer;
9. Engineering Support Staff;
10. Rigging staff
11. Document Controller;

The above personnel shall have suitable qualification and experience. The team individual personnel shall be mobilized as required prior to actual start of project activities to arrange for permits and necessary coordination between COMPANY and CONTRACTOR. CONTRACTOR shall ensure that the key members of project team are conversant with English, administration of first aid and emergency handling procedures.

CONTRACTOR shall obtain security clearance of all Contractors'/sub-CONTRACTOR's/vendor's personnel before deputing at Work Site;

CONTRACTOR's Construction Team shall undergo a safety induction program as per COMPANY requirement;

CONTRACTOR shall prepare a detailed mobilization plan and submit to COMPANY for approval at-least two (2) weeks prior to starting mobilization;

CONTRACTOR shall prepare a detailed plan and submit to COMPANY for approval at least four (4) weeks in advance prior to starting any Works. The plan shall cover:

- ▶ Site organization with assigned responsibilities;
- ▶ Subcontracting strategy for work;
- ▶ Equipment / machinery / tools separate line layout of temporary facilities including site office, fabrication workshop, NDT facilities, stores, medical, waste disposal transportation, etc.;
- ▶ Arrangements for utilities like power, water, potable water, communication, etc., and their distribution network;
- ▶ Camp accommodation arrangements for CONTRACTOR's staff;
- ▶ Material coordination and handling procedure;
- ▶ Project schedule;
- ▶ Project safety and security;
- ▶ Emergency handling and evacuation procedure in-line with the COMPANY procedures;
- ▶ Dismantling / Erection procedures/method statements;
- ▶ Project work sequence;
- ▶ Tie-in Schedule and Procedure;

- ▶ Quality control and Quality Inspection Plans;

CONTRACTOR shall mobilize experienced and qualified skilled persons of the trade to Worksite;

CONTRACTOR shall mobilize all Equipment at Worksite in a progressive manner.

CONTRACTOR shall establish Site Camp, Office and infrastructure facilities well in advance prior to commencement of site works.

7.2 SITE ORGANIZATION AND FACILITIES

CONTRACTOR shall organize a qualified and competent team headed by a Project Manager for Project work.

The Project Manager shall be responsible for:

1. All aspects of Project, pre-commissioning, commissioning support, and hand-over of the new Project Facilities;
2. Coordination and reporting to COMPANY on all project related matters;
3. Arrangement of all necessary work permits, licenses etc.;
4. Interface management with other field Subcontractors;
5. Coordination with CONTRACTOR's Head Office for all technical and material support;
6. Implementation of CONTRACTOR's HSE Policy and HSE Plan in-line with COMPANY procedures and requirements;
7. Quality Assurance and Quality Control during Construction;
8. To ensure compliance with local laws and regulations during construction.

Project site facilities will include, as a minimum:

1. Site office with conference room;
2. Fabrication workshop (with lay down facilities);
3. Materials stores (as well as fenced yard covered storage);
4. NDT/Radiography examination room;
5. First Aid/Medical Room, Paramedic staff and ambulance;
6. Area lighting, Safety Sign boards, Fire Protection, Equipment, Telecommunication Equipment;
7. Grit/ sand blasting and painting shop. Location should be selected and necessary arrangements should be made to have minimum dust exposure to existing facilities and population;
8. Toilet, washing rooms, change room;

9. Vehicle and construction equipment maintenance facility;
10. Security & surveillance facilities.

7.3 WORK PERMIT PROCEDURE

CONTRACTOR is responsible to ensure that CONTRACTOR's Personnel, Subcontractor, vendor other personnel strictly adhere to the requirement of COMPANY's Work Permit Procedure.

7.4 SITE SURVEY AND ASSESS

1. CONTRACTOR shall undertake an extensive site survey to familiarize with the project site and the existing COMPANY facilities, which are associated with the Scope of Works;
2. CONTRACTOR shall accept the Worksite "as is where is basis", and undertake the site preparation work.
3. At the Worksite, CONTRACTOR shall erect a painted wooden notice board giving the following information:
 - ▶ COMPANY Name;
 - ▶ Contract Title;
 - ▶ Contract No.;
 - ▶ Main CONTRACTOR Name;
 - ▶ Subcontractors Name;
 - ▶ Site Location Name;
 - ▶ Additional information as directed by COMPANY.
4. Information shall be stated in both English text and local language. Notice boards shall be self-supporting, and have a minimum size of 2m x 2m.

7.5 SAFETY

CONTRACTOR shall take sole responsibility for safety (including fire and loss prevention) of the Works and shall comply in all respects with the requirements of Project Plan. The scope of safety shall include the following as a minimum:

1. Providing safety and fire prevention procedures and equipment at Worksite;
2. Providing emergency evacuation and first aid facilities in accordance with the COMPANY requirements, for all personnel assigned to the Worksite;
3. Providing and implementing adequate safety management and personnel, safety

procedures, safety plans, safety organization charts, safety instructions, emergency response plan and safety talks;

4. Supervising all personnel assigned at Worksite to ensure that they abide by Project HSE Plan and procedures in-line with COMPANY procedures and requirements;
5. Regularly verifying adequacy of CONTRACTOR and Subcontractor' crane-age, rigging and scaffolding to function safely and reliably in compliance with COMPANY requirements;
6. Maintaining safety records, Issuing safety report to COMPANY as part of progress reports, Providing security fence and gates and surveillance at various areas on Work Site;
7. Provide personnel safety apparel to all its personnel and ensuring its Subcontractors and Vendors personnel are also provided likewise. CONTRACTOR's personnel shall be fully equipped with personal safety protection equipment, as required, during performance of work at site. No loose clothing and normal shoes shall be allowed;
8. CONTRACTOR shall also ensure that adequate first aid facilities and medical supply are available at all times for CONTRACTOR's personnel. Wind shields, spray guards, adequate drinking water, toilet facilities, clinic and first aids equipment shall also be provided by CONTRACTOR, at worksite;
9. CONTRACTOR shall strictly comply with all local, municipal, territorial, provincial and federal laws, orders, and regulations pertaining to health and safety which are applicable to the location where the Works are being performed. CONTRACTOR shall prepare Safety Manual in-line with COMPANY procedures and requirements for COMPANY review and approval. The manual shall be strictly adhered throughout the duration of the project.

7.6 MECHANICAL EQUIPMENT ERECTION

CONTRACTOR's Scope of Work for all required mechanical equipment erection shall include, but not limited to the following:

- ▶ Installation at a definite location, including setting, initial alignment and tightening and tensioning of foundation bolts (only through hydraulic torque machine);
- ▶ Final alignment after connection of piping;
- ▶ Provision of protection against mechanical damage and damage from weather conditions;
- ▶ Performing initial fill of lubricants, grease etc.;

The mechanical equipment installation shall cover erection of all the equipment and packages.

7.6.1 General Requirements:

- ▶ Equipment shall be handled using manufacturer's recommended lifting points or approved techniques from COMPANY;
- ▶ Prior to equipment installation, foundation location, elevation and anchor bolt locations shall be checked and verified in accordance with approved project drawings;
- ▶ Items that may be damaged during equipment installation (sight glasses, gauges, davits, thermo-wells, earthing cables etc.) shall be removed and temporarily stored. All openings, bearing surfaces and threads shall be protected;
- ▶ The connected piping shall be arranged and supported in such a manner that no strain is imposed on the equipment both during hydro testing and operation;
- ▶ The 3rd party test certificates of the lifting equipment cranes, fork-lifters, slings, shackles etc. shall be checked and verified by the safety officer, prior to starting equipment erection;
- ▶ Erection of all equipment shall be carried out under the supervision of qualified, experienced Mechanical Engineer / supervisor and safety officer;
- ▶ In the event that some components of a package are dismantled and transported loose by the CONTRACTOR, then the CONTRACTOR shall assemble all these loose components in the presence of COMPANY's representatives as per the drawings /manuals / other vendor instructions. CONTRACTOR shall be responsible to invite the COMPANY representative to witness such assembling.

7.6.2 Piping Fabrication and Erection

CONTRACTOR's Scope of Works Shall Include the Following, as a minimum:

- ▶ Dismantling and rigging of all piping material (such as pipes, pipe fittings, flanges, gaskets, fasteners, valves, special items, etc.), transportation to site, fabrication, installation, testing, painting and commissioning;
- ▶ If dismantling and relocation of flanged to flange piping spools is not feasible in certain cases, CONTRACTOR shall cut the necessary welding joints for smooth transportation and shall re-weld at Loti Gas Field.

- ▶ Supply of all consumables, temporary materials including all tools and tackles required for the execution of the job;
- ▶ Welding procedure and welder's qualification, prior to commencement of production welding;
- ▶ Radiography and stress relieving shall be included wherever applicable;
- ▶ All associated works for piping, pipe sleepers/racks and other pipe supports, platforms, crossovers, etc. for above ground piping;
- ▶ Fabrication, installation, radiography, testing coating, painting and box up of piping systems under the supervision of an experienced and qualified construction supervisor and QA/QC engineer;
- ▶ Take precaution during the installation of pipe works connected to equipment, to avoid excessive forces and moments on nozzles. Spring supports shall be provided for piping connected to equipment to compensate for thermal expansion;
- ▶ Welding of dog-legs, cleats, or other devices to pipe for alignment purposes or for handling is strictly prohibited. Any devices used for fit up of pipe for welding or flanging must be approved by COMPANY;

CONTRACTOR shall provide a Fire Watch and at least one fire extinguisher at every hot work locations. The Fire Watch shall be in compliance with COMPANY requirements.

CONTRACTOR shall comply with the Welding specifications attached in *Annexure-A*.

Responsibility of the work shall remain with the CONTRACTOR.

All welders shall be qualified to weld in accordance with the approved Welding Procedure Specifications (WPS) and shall be a COMPANY approved welder. Should the welder be not a COMPANY approved welder then he shall undergo welder test, which shall be witnessed by COMPANY. Any cost incurred for the welder test shall be borne by the CONTRACTOR. COMPANY reserves the right to reject any welder that is deemed not suitable or competent for the work, without assigning any reason;

It is advised to pre-fabricate pipe assemblies, perform NDT and hydrostatic test at CONTRACTOR's fabrication yard where applicable and possible.

CONTRACTOR shall provide the manpower, material, equipment and arrangement of Non-Destructive Testing (NDT). All fillet welds shall be Dry Penetrant tested.

All required testing shall be reviewed and verified by COMPANY authorized inspector with two (2) days early notification.

7.6.3 Piping Hydro-Test

- ▶ CONTRACTOR shall prepare and submit the Hydro test and flushing procedure, for COMPANY review and approval. The procedures shall highlight the machinery and equipment parts that must be isolated during the tests. The procedure shall highlight the valve and instruments that must be isolated during the test;
- ▶ CONTRACTOR shall adhere to the Hydro test and Flushing Procedure prior to closing up the piping systems. CONTRACTOR shall ensure that no foreign materials are left in the pipes and which could not be flushed out during flushing;
- ▶ CONTRACTOR is responsible to supply water for hydro test and leak test purpose. Hydro test water shall be analyzed for chemical composition for suitability of usage;
- ▶ It is CONTRACTOR's duty to carry out any weld repairs;
- ▶ Every repair shall undergo another hydraulic test under the same previous conditions;
- ▶ CONTRACTOR shall utilize calibrated instruments. The satisfactory measurement readings shall be followed by the signature of COMPANY's Representative;
- ▶ CONTRACTOR shall submit a program for any testing works for COMPANY's approval not later than two (2) weeks prior to commencement of testing;
- ▶ All pipe works are to be pressure tested in accordance with the procedures and specifications and the following requirements shall be fully complied with:
- ▶ CONTRACTOR shall be responsible for properly preparing Works for pressure testing;
- ▶ During the whole period of testing the Works, CONTRACTOR shall provide and install in accordance with the specifications and drawings, calibrated and accurate tests gauges and recorders and all other necessary materials and equipment required to perform pressure testing;

- ▶ All welded joints may be painted with primer only in order to prevent initial corrosion until the completion of non-destructive and pressure testing before full coating is allowed;
- ▶ All instruments including the control valves and relief valves shall be removed or isolated during the pressure testing;
- ▶ After completion of hydrostatic test, a reinstatement test for each system shall be conducted at a test pressure 95% of the lowest rated relief valve setting in the system. When no relief valves are present, the system shall be reinstated at 100% of the system operating pressure. CONTRACTOR shall prepare and submit the reinstatement procedure to COMPANY for review and approval (02) weeks in advance of any reinstatement works;
- ▶ Instrument air leak test shall be carried out by CONTRACTOR to all hydraulic signal lines. Leak test shall be done by using a bubble tester. The maximum allowable leakage rate shall not exceed 7 bubbles per minute. This test shall be witnessed and verified by CONTRACTOR quality control inspector and COMPANY Representative;
- ▶ Upon completion of hydrostatic pressure testing, CONTRACTOR shall drain and dry to the satisfaction of COMPANY, the piping by suitable method approved by COMPANY;
- ▶ CONTRACTOR shall remove all temporary facilities installed by CONTRACTOR once testing is completed to the satisfaction of COMPANY. Tests shall be witnessed by COMPANY and records of all tests shall be furnished to COMPANY within forty eight (48) hours of the test.
- ▶ Completion of final flushing of piping shall be after the reinstatement testing and acceptance by COMPANY
- ▶ All pipe works shall be adequately flushed using a high pressure and high volume flow of fresh and clean water upon completion of installation. Flushing shall be carried out with all valves fully open. CONTRACTOR shall ensure that adequate fresh and clean water be made available to perform the above works. It is CONTRACTOR's responsibility to dispose of all cleaning water.

7.6.4 Instrumentation / Electrical Installation

CONTRACTOR's scope of work includes dismantling, and calibration of all instruments and electrical items, testing, installation, and hook up, inspection,

mechanical completion, pre-commissioning and commissioning. Work shall be carried out as per applicable Codes & Standards, Project Specifications and Engineering Deliverables indicated/defined on the drawings and documents included in the Contract.

In general, CONTRACTOR's scope for instrumentation and control shall include but not be limited to the following:

- ▶ Bench calibration of all instruments prior to installation at new facility including that of mechanical packages. Calibration sheets & report shall be provided to COMPANY for review and approval;
- ▶ Installation of all instrument (in-line & off-line) including package instruments (non-skid, loose supplied), with associated tubing, fittings & manifold,
- ▶ Installation & testing of the local control panels for the mechanical packages;
- ▶ Installation of cables trays & fittings, both with covers;
- ▶ Installation of secondary cables & cabling to local control panel;
- ▶ Installation of primary cables up to control room;
- ▶ Termination and glancing of primary & secondary cables, in the field (instrument, junction boxes) and cabinets in the control room;
- ▶ Continuity testing & insulation resistance testing for all cabling & terminations;
- ▶ Loop checking & Loop checking folders shall be made by CONTRACTOR. Separate folder shall be made for each loop;
- ▶ Vendor assistance at Site for critical system and equipment shall be mandatory.

General Requirements for Electrical / Instrumentation Installation shall include but not limited to the following:

- ▶ Installation of all instrument supports/frames, mounting for junction boxes, local panels, cabinets, push buttons, switches, call points, detectors sunshades etc.;
- ▶ Installation, termination and connection of all wires, single-pair, multicore instrument, control, power supply, communications, earthing and system cables as well as other cables required to complete the Works;
- ▶ Installation of all cable ladders/trays, UPS, Battery banks, Switch Gear etc, including associated supports, brackets, holding down clamps etc.;

- ▶ Inspection, testing, calibration and commissioning of all instruments, instrument loops, instrumentation, control and safety systems, components and associated cabling etc.;
- ▶ Instrument materials and process connections shall comply with the project piping specification;
- ▶ Local mounted instruments shall be either mounted on individual supports or grouped on local panel;
- ▶ CONTRACTOR shall, in the presence of COMPANY, verify correct instrument functioning by inspection, testing and calibration. Each instrument test and calibration shall be logged on a test/calibration sheet show in the date, test condition, results, etc.;
- ▶ All testing and calibration procedures shall be performed in accordance with the instruction manuals.
- ▶ Cause and Effect Diagram verification shall be carried out in the presence of COMPANY representatives

7.7 SURFACE PREPARATION AND PROTECTIVE COATING

Requirements for surface preparation and protective coating, CONTRACTOR shall perform surface preparation and protective coating (if required) as per the following:

- ▶ CONTRACTOR shall perform surface preparation and painting of structural members, mechanical and piping, instrumentation, miscellaneous items and all other facilities to complete Works. CONTRACTOR shall ensure that the painting color coding is in accordance with COMPANY's color coding.
- ▶ CONTRACTOR shall make available on site, if necessary, the painting/coating manufacturer's representative to provide all supervisions and technical advice during all phases of painting/coating;
- ▶ CONTRACTOR shall also provide at the Work Site, approved wet and dry paint thickness measuring devices.
- ▶ CONTRACTOR shall comply with the Painting Specifications attached in *Annexure-A*.
- ▶ CONTRACTOR shall consider severe corrosive atmosphere and shall be responsible for surface preparation and painting of all equipment and fabricated items in accordance with the approved procedure and codes and standards to the

satisfaction of COMPANY. All blasting works for surface preparation shall be by grit blasting using approved grit materials;

- ▶ CONTRACTOR shall carry out Works in such a manner and sequence that surface preparation and painting can be carried out efficiently, with minimum disruption to other trades, and with minimum amount of "touch-up" work required;
- ▶ All piping welded joints may be painted with primer only and CONTRACTOR shall complete the painting of piping after non-destructive and hydrostatic testing have been completed and accepted by COMPANY's representative.

8 PROCUREMENT AND SUPPLY

8.1 GENERAL

In general, the existing major equipment (except certain civil foundations and non-recoverable material from Pirkoh Gas Facility etc.) shall be relocated from Pirkoh to Loti Gas field. Therefore, procurement of any major equipment is not foreseen.

In addition equipment and other items as per this scope of work for installation at Loti Gas Facility, all other material and consumables required for the execution of the project shall remain CONTRACTOR's responsibility.

9 COMPANY AND CONTRACTOR RESPONSIBILITIES

9.1 COMPANY'S RESPONSIBILITIES

1. COMPANY will, but is not obliged to, provide assistance to CONTRACTOR in securing necessary permits or data from the Government of Pakistan's authorities and /or agencies when required under this Contract. Failure by COMPANY to obtain and provide such assistance shall not relieve CONTRACTOR from its obligation to secure the same at its own costs.
2. COMPANY will provide space for CONTRACTOR's Temporary Facilities within the confines of Pirkoh / Loti Gas field during dismantling, Installation and commissioning phase.

9.2 CONTRACTOR'S RESPONSIBILITIES

In addition to the activities summarized herein above, CONTRACTOR shall also carry out the following Works:

1. Accepting the Worksite on an "as is where is" basis and completing site preparation work, including dismantling of existing facilities, temporary access, roads, tracks etc., as

- required for the Works;
2. Provision of services of an independent, recognized third party inspection agency as required and including all inspection tools for critical items as defined under relevant section in this document;
 3. Preparation and submission of all Construction, Pre- Commissioning and Quality Control documentation for COMPANY review, comments and approval. Approval of documents by COMPANY does not relieve CONTRACTOR of his contractual obligations and guarantees under this Contract.
 4. For any additional material, Procurement services and supply, including inspection, expediting, coordination, acceptance, forwarding, payment of legal and applicable taxes and fees, payment of customs duty, customs clearance of equipment, transportation to site and bulk materials. Performing all material tendering, evaluation of bids and shall place purchase orders, for all materials and equipment and deliver to site in a timely manner, per project schedule requirements;
 5. Provision, operation and maintenance of temporary construction and infrastructures facilities, and removal of the same after completion of the Works.
 6. CONTRACTOR shall pay special attention and take all essential measures to ensure dust control while undertaking the site works.
 7. Implement requirement of Worksite storage and protection for all procured/relocated equipment and materials;
 8. Assignment of personnel, materials, equipment and support as required to perform the Works;
 9. Warranting that the personnel, material, equipment, consumables and logistical requirements are provided to ensure effective and safe performance of the Works. CONTRACTOR shall not change personnel assigned to the Project without prior approval from COMPANY;
 10. Implementing a system of progress reporting by which COMPANY remains regularly informed of the status of the Works;
 11. Provision of inspection and testing services, welding qualification procedures and test, facilities, equipment, materials, consumables and documentation necessary for inspection and testing at all stages of the Works, all as defined in the Contract and in accordance with other inspection requirements;
 12. CONTRACTOR shall ensure that during work execution all the gaskets, nuts & bolts shall be witnessed and verified by the COMPANY before installation. CONTRACTOR and

COMPANY representatives shall witness and sign all such records. The supply and installation of all required gaskets, nuts and bolts shall be CONTRACTOR's responsibility.

13. Procure and make available all equipment and materials necessary for the dismantling, erection, Pre-Commissioning and Warranty Maintenance in accordance with the Scope of Work, specifications and drawings;
14. Development and implementation of a comprehensive equipment and bulk materials control, traceability and tracking system throughout all phases of Engineering, Procurement, Installation, Pre-Commissioning, and Commissioning support;
15. CONTRACTOR is responsible to verify and locate all the existing services and protect them during the Works execution. CONTRACTOR is deemed to include all the costs associated with the verification, protection, and demolition of the existing services in the scope;
16. Provision, operation and maintenance of accommodation camps and other temporary facilities including any temporary safety equipment and facilities during Construction, Pre-Commissioning, and Commissioning assistance as required for the performance of the Works for CONTRACTOR's workers;
17. Provide all expendable / consumable supplies, for project requirements including safety items (hard hats, eye goggles, etc.) for CONTRACTOR's workers;
18. Provision of general site security, including security for CONTRACTOR's work and accommodation areas, equipment, materials and tools, and also barricades or fencing of the Works areas as required;
19. Reconciliation of spares and materials used during Project, Pre-Commissioning and Commissioning assistance;
20. Disposal of surplus and scrap material during execution and upon completion of the Works to a designated place with COMPANY's consent;
21. CONTRACTOR shall Clean-up Worksite and reinstatement of surrounding areas after completion of Works;
22. CONTRACTOR shall liaise with COMPANY for all the interfacing Works with existing facilities and for the supply of feed for Commissioning and Start-up.
23. Providing housekeeping at Worksite including accommodation and storage areas throughout the duration of Works.;
24. Provision of Construction of All Risk Insurance and all other insurance requirements.
25. Provision of all requirements required for execution of Works, but not limited to all consumables necessary for the testing, flushing, pre-commissioning, and commissioning assistance of the in-plant piping, process equipment, valves and instruments;

26. Provision of all water required for potable (fit for drinking), utility and hydro-test;
27. Provision of food & dining, accommodation, religious and sanitary facilities for CONTRACTOR's personnel stationed at site;
28. Mobilizing all equipment, materials, consumables and personnel to and from the site;
29. Providing adequate temporary lighting arrangements for Site Works;
30. Obtaining necessary permits as per the COMPANY's PTW Procedure to perform any work;
31. Provision of Warranty Team to manage and repair all warranty defects items after commissioning up to Final Acceptance of the plant.

10 HEALTH, SAFETY AND ENVIRONMENT

10.1 GENERAL

10.1.1 Policy Statement and Objectives

CONTRACTOR shall conduct its operations in such a manner as to:

- ▶ Provide a safe working environment;
- ▶ Ensure the safety and health of CONTRACTOR's crew and personnel working within CONTRACTOR directed areas of operation;
- ▶ Protect the public from injury or ill health and prevent loss or damage to properties resulting from its activities;
- ▶ Ensure and safeguard the conservation of the environment.

10.1.2 Safety Targets

In taking steps to ensure a safe working environment, CONTRACTOR shall aim for:

- ▶ No fatalities;
- ▶ No loss time and any significant accidents;
- ▶ No roll over to vehicles.

10.2 LEADERSHIP AND GOVERNANCE

The CONTRACTOR is expected to provide the tools, knowledge and support to develop a culture where all personnel demonstrate leadership and are motivated to proactively contribute to continual improvement of HSE performance. Though the combined program will be known as the HSE Program the expectation is that the CONTRACTOR will cover the various key topics with their own individual plans,

covering the specific component details that will support the overall Site Specific requirements.

These plans will address at a minimum the following key topics; Health and Safety, Environmental, Security, Crisis and Emergency Management, HSE Risk Management and Construction – Field Execution. The CONTRACTOR shall submit for review and acceptance their Site Specific HSE Program complete with all of the plans and including the applicable procedures to comply with these requirements.

Compliance with regulatory requirements, minimum COMPANY requirements, utilizing industry best practices, as well as identifying a program review and maintenance approach to ensure a high-quality Site Specific HSE program, shall be part of the contractual commitment. Any deficiencies noted will be brought to the attention of the CONTRACTOR by COMPANY and / or its Representative. Any failure to take appropriate corrective action will result in non-compliance and formal review of the issue. COMPANY and /or its Representative have the right to stop work on the site for the period required to complete a formal review and rectification of the issues. Any stoppages for this cause will not be justification for delays to the work or a basis for additional work claims.

The CONTRACTOR must engage in clear communications with its personnel, COMPANY and / or its Representative and subcontractors on HSE issues. The CONTRACTOR and any subcontractors are required to maintain Site Specific HSE programs that meet all current applicable regulatory requirements, including any required licensing / certifying of workers, inspections and certification of equipment. Any Vendors visiting site shall be required to adhere to the Site Specific HSE program. The CONTRACTOR and any subcontractors must also frequently audit these Site Specific HSE programs and update their programs to reflect any regulatory changes.

Regulatory officials may wish to gain access to the project for investigation or inspection purposes. Overall responsibility for coordinating the general activities of regulatory personnel while on the project lies with COMPANY and / or its Representative. The CONTRACTOR and subcontractors must share knowledge of an unscheduled inspection. COMPANY and / or its Representative will act as escorts and observers, if permitted, during all regulatory inspections. Regulatory officials are visitors to the project and must attend an HSE orientation suitable for visitors. Copies of government inspection reports must be provided to COMPANY and / or its Representative upon receipt from the government organization.

HSE documentation, document control and HSE records must be maintained by the CONTRACTOR for effective implementation of their Site Specific HSE program and their Site Specific HSE Execution Plan.

The CONTRACTOR Monthly Report shall record incident statistics as a record of the performance and improvement of the Site Specific HSE Program. The CONTRACTOR Monthly Report shall be submitted to COMPANY and / or it's Representative on or before the 3rd of each month for data collected from the previous month.

10.2.1 Implementation Aspects

The policy is implemented with special attention to the following specific aspects:

- ▶ The requirements of all relevant government legislation are followed;
- ▶ COMPANY standards, specifications, procedures and regulations are applied;
- ▶ Safety is given equal importance to productivity and cost;
- ▶ Each employee is given specific procedures related to his work;
- ▶ Each employee receives suitable technical and safety training;
- ▶ Work instructions are clear and pay due regard to safety requirements;
- ▶ Experience gained, lessons learned from accidents/incidents and new technical developments to be widely distributed amongst staff;
- ▶ To submit measures and standards in practice in regard to the protection of the Environment, Safety and Health to COMPANY, that complies with COMPANY policy and standards;
- ▶ To maintain an effective HSE Management System that covers all aspects of the activities;
- ▶ To maintain complete documentation of all procedures and manuals relating to the work, including accident/incident reporting;
- ▶ Shipment of regulated hazardous materials to COMPANY must be consigned to COMPANY's destination in full compliance with shipper and carrier responsibilities as stipulated by the applicable, international, national, provincial and local laws/regulations/practices, relating to packaging, documentation, handling, use, storage and disposal;

- ▶ Worksite, work areas are designed, built and operated in such ways that work can be carried out safely and in an environmentally sound manner;
- ▶ Only materials, tools and equipment which meet high standards are used;
- ▶ The safety aspects of Worksite, work area, materials and tools are reviewed continually;
- ▶ CONTRACTOR is required to adopt and maintain the same high standards as per COMPANY requirement;
- ▶ All work carried out, whether by CONTRACTOR or its Subcontractors, is effectively monitored by CONTRACTOR;
- ▶ A regular safety meeting to be held at all levels in the organization to ensure safety occupies important aspect of work planning and execution.

10.3 RESPONSIBILITY

10.3.1 Unit Safety Officer

CONTRACTOR shall have at all times a fulltime responsible person appointed as the crew's Unit Safety Officer. The Unit Safety Officer shall oversee all matters pertaining to safety in all crews operation and shall

- ▶ Conduct fortnightly safety meetings with all his crews;
- ▶ Follow-up safety items raised during safety meetings;
- ▶ Ensure accident/incident reports are completed and forwarded to the COMPANY's Representative within twenty four (24) hours;
- ▶ Set up a system to enhance the safety attitudes and awareness of all his crews;
- ▶ Participate in safety program or meeting conducted by COMPANY;
- ▶ Arrange or participate in the accident/ incident investigation.

10.3.2 All Personnel

It is the responsibility of every personnel to maintain a safe working environment, both at his assigned work place and in other parts of the survey area.

Inappropriate conduct or mischievous acts shall not be allowed, as this presents a safety hazard to the entire crew. Subject to regulation enforced, firearms, weapons, prohibited drugs or alcohol shall not be allowed at base camp or work place

All Contractors' Personnel are to undergo an annual medical check-up at CONTRACTOR expense, to certify their fitness for duties in harsh environment. Valid medical certificates are to be kept together with the personnel records for inspection purposes.

10.4 TRAINING REQUIREMENTS

10.4.1 First Aid, Resuscitation and Fire-Fighting

- ▶ There must be an adequately trained first aider at work location;
- ▶ All personnel must be trained to operate fire-fighting equipment at their own workstations.

10.5 SAFETY MEETINGS AND AUDITS

10.5.1 Safety Inspections/Audits

Prior to Works, CONTRACTOR's equipment shall be inspected by COMPANY Representative(s), satisfied for operation and must meet all COMPANY safety specifications and regulations. Subsequent inspections will be made to ensure that proper actions have been taken to rectify earlier identified unsafe situations and that equipment is in working order.

10.5.2 Safety Awareness / Meetings

CONTRACTOR must be responsible for maintaining and enhancing the safety awareness of its personnel and Subcontractor personnel, including arranging and/or participating in regular safety meetings/briefing and emergency drills.

The objectives of safety meetings are to:

- ▶ Provide opportunities for personnel to voice their concern over unsafe situations or procedures in their respective work places;
- ▶ Provide information and warning for other personnel in regard to potential or existing hazards;
- ▶ Allow collective solutions to be put forward through discussion.

It is COMPANY's requirement that all Contractors' Personnel attend regular safety meetings and names of attendees shall appear on the minutes of such meetings. Non-attendance at a safety meeting must be authorized by a responsible person and a reason for non-attendance must be given in the minutes.

10.5.3 Frequency

- ▶ The meeting shall be held fortnightly and include a safety talk or presentation on a chosen subject aimed at enhancing safety awareness on site.
- ▶ Safety audits shall be conducted by the respective Safety Officer in conjunction with the COMPANY Representative on a monthly basis or whenever deemed necessary.

10.5.4 Tool Box Meeting

CONTRACTOR shall conduct Tool Box Meeting at the work place in the morning before start of the work about the nature of job to be done. What are the safety aspects to be observed and whom to contact in case of emergency. Tool box meeting shall be conducted by authorized Safety Officer.

10.5.5 Reporting

- ▶ All safety meetings are to be minute and forwarded to COMPANY Representative;
- ▶ All emergency drills are also to be forwarded to the COMPANY's Representative;
- ▶ All safety audits are to be reported to COMPANY's Representative monthly, with action points listed;
- ▶ All accidents and incidents related to the survey shall be reported in accordance with COMPANY Accident Reporting Procedure, within twenty four (24) hours in the event of:

Any loss of or damage to material or equipment supplied by either COMPANY or CONTRACTOR;

Any personal injury to any COMPANY or CONTRACTOR's Personnel, its agents or Subcontractors;

Any injury to any third party;

A near miss incident.

A full detailed report via telex or fax sent to COMPANY within twenty-four hour (24) hours and an Accident or Incident Report filled out by CONTRACTOR's HSE Manager immediately.

10.5.6 Field Execution

The CONTRACTOR's Site Specific Health and Safety Execution Plan shall include, but is not limited to the following safety elements as applicable to the work:

- ▶ CONTRACTOR Site Procedures
- ▶ Site Access and Minimum Requirements
- ▶ Responsibility, Accountability and Disciplinary Action
- ▶ Personal Protective Equipment (including Atmospheric Monitoring)
Maintaining Protective Equipment
- ▶ Job Safety Planning/Analysis (JSP/JSA)
- ▶ Protection from Excessive Noise
- ▶ Working near Live Equipment
- ▶ Working at Heights
- ▶ Working with and Disposal of Hazardous Material / Chemicals
- ▶ Safety Meetings
- ▶ Joint Health and Safety Committee (JHSC)
- ▶ Incident Reporting and Investigation
- ▶ Emergency Procedures
- ▶ Lock Out / Tag Out (Work Protection)
- ▶ Floor and Roof Openings
- ▶ Safety Barriers/Barricades
- ▶ Craning/Hoisting Equipment
- ▶ Rigging and Heavy Lifts
- ▶ Explosive Actuated Tools
- ▶ Excavations and Trenching
- ▶ Confined Space Program
- ▶ Fire Protection
- ▶ Scaffolding
- ▶ Rescue Procedure (ERT)

- ▶ First Aid
- ▶ Smoking in the Workplace
- ▶ Vehicle traffic on site (Equipment & Vehicle Pre-use Inspections to ensure equipment and vehicles continue to be maintained at an appropriate level)
- ▶ Tailboard/Tool Box

10.6 SAFETY TOOLS AND EQUIPMENT

The use of correct, properly designed and serviceable tools and safety equipment is required. All working personnel should be taught the proper and correct way of using safety tools and equipment.

10.6.1 Fire-Fighting Equipment

- ▶ Fire-Fighting systems are to be checked and tested periodically;
- ▶ All fire extinguishers are to be checked and certified twice annually;
- ▶ Fire extinguishers and fire hose stations are to be prominently marked and located at all the construction site;
- ▶ Fire water pump to be inspected, serviced regularly and maintained in operational mode at all times;
- ▶ Alarm system to be tested during every drill

10.6.2 First Aid and Survival Equipment

- ▶ Adequate number of first-aid boxes and resuscitation units are to be placed at strategic points;
- ▶ First aid boxes are to be inspected regularly and stocks replenished;
- ▶ Prescription drugs are to be certified and administered by pharmacist and kept under lock.

10.6.3 Protective Equipment

- ▶ All protective equipment shall be of types manufactured to standards and approved by COMPANY;
- ▶ Protective equipment shall be worn at all times at the Work areas;
- ▶ CONTRACTOR is responsible to ensure that all workers are supplied with PPE, i.e. safety hat and safety boots, etc. as a minimum.

10.7 HOUSEKEEPING

CONTRACTOR shall ensure good housekeeping at the Work Areas. Washrooms and toilets shall be serviced regularly.

10.8 EMERGENCY EQUIPMENT AND PROCEDURES

10.8.1 Emergency Procedures

CONTRACTOR shall have in place an Emergency Response Procedure (ERP) describing in detail the communication system, site emergency response operation, duties and responsibilities of personnel and action to be taken in the event of an emergency.

CONTRACTOR ERP, which is to be consistent with the COMPANY ERP, shall be reviewed and approved by the COMPANY prior to the commencement of the Works.

10.8.2 Emergency Response

CONTRACTOR shall provide adequate first aid, firefighting, lifesaving and other safety equipment and shall maintain this equipment in a professional manner and where appropriate re-certify as dictated by legal and industry standards. CONTRACTOR shall keep up-to-date records of all said equipment, including equipment location plans.

CONTRACTOR shall provide a designated vehicle to be used as an ambulance at Worksite.

10.9 ACCIDENT REPORTING AND INVESTIGATION

Accident is defined as any unintentional or unplanned event or condition which has or could have resulted in injury to a person and loss or damage to equipment, plant or property.

It is COMPANY requirement that all accident, no matter how trivial, must be reported to COMPANY's Representative. CONTRACTOR shall ensure that its employees are aware of this mandatory requirement.

CONTRACTOR shall be responsible to investigate, in a professional manner, all accidents that occur during the performance of the Works and the investigation report shall be made available to COMPANY within twenty four (24) hours of its occurrence. CONTRACTOR shall also be responsible to assist COMPANY in accident

investigation if so required. COMPANY may call for a joint investigation with CONTRACTOR if necessary.

CONTRACTOR shall where applicable have, prior to commencement of Contract, accident reporting and investigation procedures and shall maintain accident statistics which shall be compatible with COMPANY Accident Reporting Procedures. Otherwise, CONTRACTOR shall adopt the current COMPANY Accident Reporting Procedures.

CONTRACTOR shall submit the basic safety information to the appropriate COMPANY Representative not later than the first day of the month following the month under review, by telex or fax.

10.10 ALCOHOL / DRUG POLICY

- ▶ CONTRACTOR personnel, agents and Subcontractors shall not misuse legitimate drugs or possess, use, distribute, or sell illicit or prescribed controlled substances or drug on COMPANY business or premises. CONTRACTOR shall adopt and enforce work rules and policies in order to assure compliance with this obligation.
- ▶ CONTRACTOR is reminded that alcohol and illegal drug are totally prohibited from Worksite.
- ▶ COMPANY also reserves the right to conduct searches on possession of drug and/or alcohol to the person, vehicles, and other property of CONTRACTOR, its personnel, agents or Subcontractors while on premises owned or controlled by COMPANY. Any person who refuses to cooperate with any such search shall be removed from the premises and not permitted to return.
- ▶ CONTRACTOR shall require its personnel, agents and Subcontractor to submit to medical evaluation on alcohol or drug testing where cause exists to suspect alcohol or drug use.
- ▶ CONTRACTOR warrants that any of its personnel, agent or subcontractor who either (a) refuses to participate in medical evaluation or alcohol or drug tests, or (b) tests positive for alcohol or controlled substance, shall be removed from the premises and not be permitted to perform any work with COMPANY.
- ▶ CONTRACTOR shall maintain strict discipline and good order among its personnel, agents and subcontractors, and shall not permit any of them to engage

in activities which COMPANY deems contrary or detrimental to COMPANY interests. If COMPANY requests that any personnel of CONTRACTOR or of subcontractors be removed from COMPANY property or Work site pursuant to this Contract for any reason, CONTRACTOR shall accede to such request and shall provide a replacement acceptable to COMPANY at no additional cost to COMPANY.

- ▶ In the event CONTRACTOR is unable to comply with these obligations, COMPANY shall have the right to terminate this Contract.

10.11 MEDICAL WELFARE

CONTRACTOR shall ensure that all its personnel and/or other personnel assigned by CONTRACTOR for the performance of the Works are medically fit and healthy. Any medical disabilities including such disabilities which CONTRACTOR may consider will not adversely influence the person's ability to perform his role in the Works should be reported to COMPANY prior to the start of the Works. CONTRACTOR, if requested by COMPANY, shall provide medical certificates for CONTRACTOR and Subcontractor personnel.

CONTRACTOR shall subject its key personnel and its Subcontractor personnel to regular medical examination at their cost. Records of such examination shall be made available to COMPANY on request.

CONTRACTOR shall at no cost to COMPANY be responsible for the medical welfare of its own and Subcontractor personnel and shall take care of arrangements for medical attendance treatment or hospitalization if and when necessary and will arrange suitable insurance coverage for such contingencies. In cases of emergency, COMPANY may make or provide for, the necessary emergency arrangements, the costs of which shall be reimbursed to COMPANY by CONTRACTOR.

CONTRACTOR shall make first aid arrangements for all of its personnel and ensure that all personnel are informed of such arrangements.

Where applicable, CONTRACTOR shall provide a suitably equipped and staffed first aid room if the Work Site presents a high risk from hazards.

10.12 ENVIRONMENTAL

The CONTRACTOR's Site Specific Environmental plan requirements shall identify and demonstrate how the CONTRACTOR plans to eliminate or mitigate the potential

environmental risks associated with the project while ensuring compliance to the minimum Site Specific requirements.

In addition to this, the CONTRACTOR shall comply with all local and Pakistani national laws, ordinances and regulations pertaining to environmental protection including, but not limited to, the following:

- ▶ Natural resources including air, water and land
- ▶ Solid waste disposal including excess excavated material
- ▶ Noise including explosions
- ▶ Control of dust, toxic substances, hazardous materials and radiation
- ▶ The presence of chemical, fuel and lubricants, physical and biological elements and agents that adversely affect and alter ecological balances
- ▶ Degradation of the aesthetic use of the environment
- ▶ Impact on daily activities such as traffic
- ▶ Historical, archaeological, and cultural resources the plan should cover
- ▶ Waste Management Program

10.13 REPORT

CONTRACTOR to document its performance in HSE for the duration of the contract and submit to COMPANY at the end of contract or when requested by COMPANY

11 SECURITY / COMMUNITY RELATIONS

11.1 GENERAL

The objectives of security measures for the purposes of this Contract could be defined as “taking such sufficient, reasonable and effective steps and measures that would secure and safeguard men, materials and equipment so that they are free to deliver their normal output without any delay, hindrance or stoppage on this account”.

It is CONTRACTOR’s obligation to ensure the comprehensive security of its personnel, equipment and materials both during transportation and at work site during the execution of the Project till the issuance of the Provisional Acceptance Certificate (PAC). Though the CONTRACTOR shall be responsible for security of its personnel, CONTRACTOR’s and COMPANY’s Items at all times. COMPANY shall be

responsible for the security of the new facilities provided under this Contract only after the issuance of Provisional Acceptance Certificate (PAC)

COMPANY shall be responsible for the security of its own personnel only (both during travelling and at work site).

11.2 CONTRACTOR'S RESPONSIBILITIES

CONTRACTOR shall be responsible for the care, custody, pilferage, construction damage and weather effects for the Works. This includes responsibility of escorting and/or protective cover to and from the Site of CONTRACTOR crews, personnel, equipment and materials.

Locations, where CONTRACTOR shares common entrance through COMPANY's premises for access to his work-place, the CONTRACTOR will be responsible to ensure that CONTRACTOR's employees, labor and vehicles move directly to the work-place and DO NOT trespass COMPANY's restricted areas.

For Loti & Pirkoh Gas field premises, the CONTRACTOR shall ensure the security of the work-place area.

CONTRACTOR when making the security arrangements shall comply with COMPANY's security requirements (security personnel, weapons, vehicles, posts, catering, camp etc.).

The CONTRACTOR shall be responsible for providing food, accommodation, fuel, etc. for their own security related personnel, equipment and vehicles.

The CONTRACTOR shall be responsible for dealing with and resolving all disputes directly or indirectly connected with their employees, and that arising out of employment of its personnel.

The CONTRACTOR shall be responsible for handling day to day issues/ complaints which are attributable to the CONTRACTOR and its personnel.

CONTRACTOR shall, during the continuation of this Contract, work in close liaison with COMPANY's Security Department for the sharing of information on security matters and issues. Furthermore, CONTRACTOR shall ensure alertness of its security staff during the performance of Work.

CONTRACTOR shall whenever possible employ the Security Staff from the local areas (except from the villages from immediate vicinity) subject to availability and

suitability of qualifications, experience and physical/ medical fitness for the work with satisfactory record of conduct.

CONTRACTOR shall be responsible to seek security clearance of all its security personnel from relevant authorities. Copy of the same will be forwarded to the COMPANY's Security.

CONTRACTOR shall ensure that its security staff is equipped with weapons of good quality, purchased under legal permit from a legal outlet and has a permission to carry such weapon. Where required, the security guards shall be armed with 12 bore pump action repeater shot guns/ pistols of a reputable make (or as mutually agreed between the COMPANY and CONTRACTOR) with sufficient ammunition. CONTRACTOR shall also ensure the safe custody and safety of their weapons, ammunition and equipment.

CONTRACTOR shall be responsible to set up communication links between:

- ▶ Work locations and CONTRACTOR's Base Camp
- ▶ Escorting crew and the CONTRACTOR's Base Camp (during escorting of personnel, equipment and materials.)

CONTRACTOR shall develop comprehensive entry and exit operation in line with COMPANY policies, procedures and guidelines for all the Site gates for personnel, vehicles, equipment and material and shall ensure its implementation at all time.

CONTRACTOR shall ensure the discipline and compliance of COMPANY's HSE policy by CONTRACTOR's Security Staff.

CONTRACTOR shall duly notify COMPANY's representative in writing if work is going to be, or has been suspended due to security reasons,

11.3 COMPANY'S RESPONSIBILITIES

COMPANY shall be responsible for the security of its personnel, existing facilities and equipment installed/deployed at the Work Site.

COMPANY's Security Staff shall guard the premises of the Pirkoh / Loti Gas facility, which are confined facilities with perimeter fence and boundary wall.

COMPANY shall notify CONTRACTOR, as soon as it is reasonably practical, after the discovery of any incident or circumstances regarding the Work where, in the

opinion of the COMPANY, immediate action is required to effect emergency, remedial, or other operations for security reasons.

COMPANY shall handle directly all matters and issues (not attributed to the CONTRACTOR) with the related local community, land owners, local / district / provincial administration, notables, police etc.

COMPANY shall provide relevant experts from security policies, plan, general rules and emergency response procedure to the CONTRACTOR in the form of Security briefing by the FSI for their general guidance and compliance. Based on these guidelines and policies, CONTRACTOR shall develop its own procedures for the effective implementation of the security policies and the plans. Copy of the same will be shared with the COMPANY's Security.

11.4 SECURITY INCIDENT / EVENT INVESTIGATION AND REPORTING

Any Project related security event/ incident occurring during the execution of this Project till the issuance of PAC involving CONTRACTOR and/or the COMPANY shall be reported and investigated

This investigation shall establish the root cause underneath the immediate or apparent cause of any security incident / event. The investigation will establish the responsible party or parties for the event/ incident based on the root cause. Responsibility of bearing the cost and/ or schedule impacts and/or taking counter measures for recurring of any security event shall only be determined by the root cause analysis.

CONTRACTOR shall ensure that all Incidents are reported immediately to the COMPANY's Security with Initial Investigation Report within 24 hours of its detection/happening/occurrence. The Parties shall investigate the matter and each complaint and event shall be addressed accordingly and remedied as soon as possible.

11.5 COMMUNITY RELATIONS

CONTRACTOR shall endeavor to employ local people, especially from the vicinity of the Site, in order to nurture the relationship with local communities as much as their qualifications and skills make it possible to do so. All such dealings must be carried out in consultation with the COMPANY. If CONTRACTOR withholds payments to such local persons or subcontractors unreasonably, then COMPANY shall have the right to make those payments directly with subsequent deductions from the invoice(s) payable to the CONTRACTOR.

CONTRACTOR shall at its own expense provide and maintain such accommodation and amenities as it may consider necessary for all its staff and labor, employed for the purposes of or in connection with the Contract.

CONTRACTOR shall engage a professional labor CONTRACTOR if appropriate, in consultation with COMPANY, to handle hiring of locals using proper paperwork as per the legal requirements under the Laws of Pakistan, and to terminate their services upon completion of the Project. COMPANY shall have no liability with respect to any labor issues at Site.

CONTRACTOR shall be responsible to handle all local community issues arising as a result of CONTRACTOR's activities and/or for reasons attributable to CONTRACTOR. Though in case deemed necessary, on CONTRACTOR's request, COMPANY may intervene to facilitate the CONTRACTOR in resolving any local community dispute/issue (attributable to CONTRACTOR), however, in any such case COMPANY will hold no liability/responsibility of getting the matter settled and/or bear the consequences.

12 QUALITY ASSURANCE AND QUALITY CONTROL

12.1 GENERAL

CONTRACTOR shall be responsible to plan, establish, implement and maintain a Quality System for the engineering, procurement, fabrication, installation, pre-commissioning and commissioning support as per the Contract in line with ISO 9001, ISO 9002 and the requirements of project specification for Quality Assurance.

CONTRACTOR shall submit a copy of CONTRACTOR's policy statement on their corporate quality manual and procedures, as a part of their bid, for review by COMPANY.

CONTRACTOR shall be responsible for all Quality Assurance and Quality Control functions and shall at all times provide adequate, competent and qualified supervision and inspection personnel, approved by COMPANY, to ensure that the quality of work is met and timely inspected.

CONTRACTOR shall supply all the relevant quality assurance requirements to its Subcontractors, suppliers etc. involved in the Project for compliance and shall be responsible for Overall Project Quality Assurance and Quality Control.

12.2 PROJECT QUALITY PLAN

CONTRACTOR shall prepare a specific Project Quality Plan for the Contract, detailing all quality aspects as defined in COMPANY specification mentioned above and submits to COMPANY for approval, within 2 weeks' from the Contract Effective Date. The Quality Plan shall cover, in addition to compliance with related project specifications, all aspects of on and off site inspections, inspection request forms, non-conformance reports, remedial actions, records, scheduling, etc.

CONTRACTOR shall effectively implement the quality system defined in the plan, verify execution of the implemented system and issue reports of audits performed. Any non-conformance will be handled in line with the requirements of the Quality Plan. Any deviations / non-conformance that require COMPANY approval will be submitted to COMPANY with adequate back-ups justifying the acceptability of the deviations / non-conformance. CONTRACTOR shall be responsible to extend these requirements to its subcontractors and suppliers.

12.3 QUALITY CONTROL

Quality control activities for the Project shall include the following, as a minimum:

- ▶ Development of inspection and test plans (ITPs), procedures, schedules and reports for Project;
- ▶ Review, approval and monitoring of vendor / Subcontractors inspection and & test plans;
- ▶ QA/QC requirements for Subcontractors / vendors;
- ▶ QA/QC requirements for all site related activities (Field QA/QC plan);
- ▶ Document Control;
- ▶ Safety & Environmental control;
- ▶ Verification of all test certificates for compliance with COMPANY requirements. To achieve the above objectives, dedicated QC Personnel are required for the Works.

12.4 INSPECTIONS AND TESTING

CONTRACTOR shall arrange, co-ordinate and be responsible for all inspections and testing, including code inspection covering all shop and site related items. CONTRACTOR shall provide all necessary testing equipment, materials, tools, supervision and manpower assistance for carrying out proper testing of all facilities.

CONTRACTOR shall be responsible for safe and proper inspection and testing of items and facilities.

Request for Inspection (RFI) for site inspection shall be submitted at least 24 hours prior to the inspection activity.

CONTRACTOR shall provide facilities for the radiographic, ultrasonic, magnetic particle and dye penetration inspection of weld, in accordance with the project specification. CONTRACTOR will also provide dark room facilities for development of films and full time services of qualified technicians, trained in ultrasonic and radiographic inspection techniques. The cost of all such facilities, materials and resources, shall be included by the bidder in the Contract Price.

Representatives from COMPANY and CONTRACTOR shall perform the inspections together on all materials, equipment and works for compliance with the project specifications.

All Material Receiving Inspection (MRI) shall include original or certified copy of Mill Certificates and Vendor Drawings.

12.5 QUALITY ASSURANCE MANUAL

The contents of CONTRACTOR's Quality Assurance Manual shall cover:

- ▶ Civil/Structural Construction;
- ▶ Pipeline laying;
- ▶ Piping Fabrication / Manifolds;
- ▶ Valves, Check valves, Safety valves;
- ▶ Structural steel;
- ▶ Electrical Installation;
- ▶ Instrumentation Installation;
- ▶ Vessels or equipment installation;
- ▶ Pipes and fittings;
- ▶ Skid mounted equipment;
- ▶ Handling and lifting equipment.

12.6 QUALITY MANAGEMENT SYSTEM REQUIREMENTS

CONTRACTOR shall ensure a Quality Management System ("QMS") is implemented on the Project for all aspects of the Work in order to ensure that the Facilities shall conform to the Technical Requirements, regulatory requirements, sound and generally

accepted engineering and construction practices and all other QMS related requirements set forth in Contract.

CONTRACTOR's QMS duties extend to all members of CONTRACTOR's Group, and CONTRACTOR is responsible for its Subcontractors', Vendors' and their subcontractors' and sub-suppliers' fulfillment of the QMS responsibilities.

COMPANY maintains the right to review and approve all QMS related documentation, witness testing of Materials and components of the Facilities, and to inspect the Facilities.

Such review of documents and/or inspection and witness of testing by COMPANY shall in no way relieve CONTRACTOR from its obligation to full fill its QMS duties and for the Facilities to comply with the Technical Requirements, unless deviations are specifically agreed upon in writing by COMPANY.

CONTRACTOR's quality system shall include the following features and provisions:

▶ Scope

CONTRACTOR's quality system shall encompass all phases of the Work and shall apply to materials and facilities comparable to the Materials and Facilities;

CONTRACTOR's quality system shall be consistent with ISO 9001:2000.

▶ Audit Provisions

CONTRACTOR's quality system shall include an internal and external audit program to demonstrate proactive compliance throughout all phases of the Work and as applied to all Materials, components of the Facilities, and the completed Facilities.

▶ Reporting

CONTRACTOR shall submit copies of all audit, test and inspection reports within two (2) weeks of the event for COMPANY's review.

▶ Reporting and Resolution of Non-conformities

CONTRACTOR's quality system shall establish procedures to ensure that all of CONTRACTOR's Suppliers'/Subcontractors' procedures for reporting and resolution of nonconformance items are aligned and integrated with CONTRACTOR's nonconformance resolution process. These procedures shall include the necessary CONTRACTOR engineering review and disposition processes and COMPANY review and Approval requirements.

12.7 CONTRACTOR'S QMS PLAN

The CONTRACTOR's QMS Plan shall describe the QMS activities to be implemented by CONTRACTOR and all other members of CONTRACTOR Group, and shall cover the full scope of the Work (e.g., engineering, procurement, construction, start-up and commissioning support). The QMS Plan shall include but not be limited to the following

- ▶ Organization chart(s) that illustrate the reporting relationship of the QMS personnel with other Work personnel for all CONTRACTOR Group home office and field organizations
- ▶ A matrix that shows the proposed inspectors/inspection companies, location of quality surveillance personnel, their qualified discipline(s), years of supplier surveillance experience, and employment status (i.e., full-time or part-time employee and subcontracted or CONTRACTOR employee)
- ▶ A list of QMS procedures that will be used during the Work with a description of the scope and purpose of each procedure
- ▶ The plan for reviewing Contract and subcontract documents regarding Supplier/Subcontractor quality control requirements
- ▶ The plan for performing surveillance at a Supplier's/Subcontractor's (or their sub-supplier's) facility to inspect Material and components of the Facilities to ensure conformance to the Technical Requirements
- ▶ The plan for applying shop inspection resources to Materials and bulk Materials
- ▶ The plan for performing evaluations/audits of Suppliers'/Subcontractors' quality systems to determine Supplier/Subcontractor capabilities and compliance
- ▶ The plan for issuing surveillance or evaluation reports in a timely manner
- ▶ The plan for performing Supplier/Subcontractor surveys
- ▶ The plan for conducting Supplier/Subcontractor Quality Alignment Meetings at a Supplier's/Subcontractor's facility when requested
- ▶ Identification and traceability systems for Materials
- ▶ Equipment and Material handling and storage procedures
- ▶ Non-conformance reports and Corrective action procedures
- ▶ Non-conformance reports will be issued when Work presented by the Supplier as being complete is found to be deficient. Corrective action procedures will be developed, corrective actions will be carried out and corrective action reports written and submitted to COMPANY for review.
- ▶ Record-keeping methods and systems

CONTRACTOR shall include written management level reporting pertaining to all QMS activities in all progress reports that summarizes the results and identifies any key issues pertaining to QMS activities for the Work.

12.7.1 Material Traceability Requirements

CONTRACTOR shall ensure that Material certification documentation, suitable for ensuring clear Material traceability, is provided for all aspects of the Work in accordance with the Technical Requirements. CONTRACTOR shall submit its Material Traceability and PMI Program, and Procedures for COMPANY approval, and such procedures shall be a part of CONTRACTOR's QMS Plan.

12.7.2 Qualification of CONTRACTOR Inspectors

CONTRACTOR shall select experienced inspectors/inspection companies who have in-depth knowledge of the equipment, specifications, inspection techniques certified by the code for the specific task, and trades involved in fabricating/constructing/erecting/installing the specific Work and/or equipment they are assigned to inspect. Each inspector and inspection COMPANY to be used by CONTRACTOR shall be identified before Work starts. Prior to starting Work, the CONTRACTOR shall submit to COMPANY the name and career resume of each inspector proposed. COMPANY reserves the right to reject CONTRACTOR inspectors/inspection companies before Work starts or during the course of the Work. COMPANY shall have the right to interview all Contractors' proposed inspectors/inspection companies prior to the start of Work.

CONTRACTOR inspectors/inspection companies approved by COMPANY shall not be changed unless COMPANY approves such changes in writing.

CONTRACTOR shall have a full-time QMS Manager to assign and administer inspection on the Work. The QMS Manager's responsibilities shall include supervision of inspectors, maintaining QMS plan, performing audits to ensure compliance with QMS plan, review of all inspection reports prior to distribution and providing COMPANY sufficient notice of test/inspection points. CONTRACTOR's QMS Manager shall maintain a database of Work and equipment to be inspected showing as a minimum, the purchase order number, Supplier, factory location, equipment number and description, contact with phone number, name of CONTRACTOR inspector, preproduction meeting date, production start date, required shipping date, scheduled shipping date, size/weight, whether Supplier/Subcontractor is ISO 9000:2001 certified, and a space for remarks. CONTRACTOR shall update the database weekly and

provide two (2) copies to COMPANY. The frequency may change to monthly updates when directed by the COMPANY.

COMPANY reserves the right to communicate with CONTRACTOR's inspector(s) directly and make joint or separate visits for inspection, witnessing tests and evaluating the CONTRACTOR inspector's performance. CONTRACTOR's inspector(s) shall speak and write fluently in the English language.

12.7.3 Qualification Inspection and Surveillance Levels (Qi)

The project Quality Surveillance and Inspection coordinator should work closely with Engineering to establish the level of QS&I required for each purchase order or contract which is based on product complexity, characteristics, type of service, manufacturing complexity and schedule.

There will be five levels of QS&I from level 0 which will have no source of quality surveillance or inspection, graduating up to level 4 with continuous QS&I, where the resident QS&I Inspector is required at the manufacturing facilities.

12.8 INSPECTION AND TEST PLANS (ITPS)

CONTRACTOR shall develop and implement Inspection Test Plans (ITPs) for all aspects of the Work (e.g., procurement, fabrication, installation, construction, start-up and commissioning support). All ITPs shall be consistent with Contract Schedule and be submitted to COMPANY for Approval. The ITPs shall list and describe all inspection, test, and Material certification requirements necessary to ensure that Technical Requirements, Project Specifications and CONTRACTOR's quality standards are met. As a minimum, the ITPs shall include the following:

- ▶ Identification of the scope of Work covered by the surveillance function
- ▶ A tabular format listing of all inspection and test items
- ▶ All required inspection and test points and location of the Work
- ▶ All required inspection and test points by applicable certifying authorities such as ASME (as applicable) according to applicable regulatory guides, rules, codes and specifications
- ▶ Applicable document references and acceptance criteria for the type of inspection and test required for all phases of the Work. Reference to applicable control documents such as instructions, procedures, drawings, specifications, inspections and test plans, inspection, and test records to be used to execute the inspection and test activities
- ▶ Inspection points shall be provided to satisfy the inspection and testing requirements

- of the relevant code and specification
- ▶ Inspection and test certification documentation
- ▶ Identification of all COMPANY designated witness and hold points.

CONTRACTOR is expected to review and expand the Technical Requirements as necessary to meet the quality objectives of the Work, but under no circumstances may the CONTRACTOR reduce the Technical Requirements.

CONTRACTOR shall be ultimately responsible for the development and proper implementation of all ITPs, including those reviewed or developed by CONTRACTOR's Suppliers/Subcontractors. All the ITPs shall be submitted for COMPANY review and approval prior to fabrication of equipment and all on-site fabrication/ installation/ erection/ construction activities.

COMPANY reserves the right to select witness and hold points within all developed ITPs for COMPANY's oversight of selected functions and to perform surveillance or audits of the Work.

12.9 COMPANY QUALITY MANAGEMENT ACTIVITIES

COMPANY may inspect and shall have free access at all times to any part of CONTRACTOR's Supplier's/Sub-CONTRACTOR's facilities associated with the Work under this Contract. COMPANY reserves the right to participate in any audits scheduled by Supplier/Subcontractor or to plan and conduct its own audits including Supplier/Subcontractor facilities. COMPANY shall have the option of inspecting every item and procedure associated with the Work. Work shall not proceed beyond COMPANY inspection "witness" or "hold" points without COMPANY inspection or COMPANY written waiver of inspection. COMPANY inspectors shall have the right to explore any apparent defects in Materials, welds or fabrication. Supplier/Subcontractor shall provide office space, drawings, phone and other support Materials for COMPANY inspection personnel during execution of the Work. In addition to inspection points indicated on the ITPs, COMPANY may, at its sole option, inspect any activity related to facilities/work under this Contract at any time. Supplier/Subcontractor shall fully support COMPANY in this activity on an accompanied or unaccompanied basis as required by COMPANY.

Methods of COMPANY inspection may include, but are not limited to: visual, metallurgical, dimensional, or any suitable non-destructive testing method. The type and extent of inspection shall be at the discretion of COMPANY. For performance or

mechanical tests, CONTRACTOR shall provide pre-witness test data at the time of final confirmation/notification of the test date.

Where COMPANY inspectors have just cause to suspect the quality of any item/activity, the inspector may require that additional inspection or testing be performed either by CONTRACTOR or by a third party selected by COMPANY. Prior to this additional inspection or testing, the inspector will so advise COMPANY or designated representative of the situation. Cost for inspection and testing and repairs of defects shall be the responsibility of CONTRACTOR. For any COMPANY identified defects not corrected in a timely manner by CONTRACTOR's Supplier/Subcontractor, CONTRACTOR shall provide a Non-conformance Report which provides the reason for non-conformance and corrective actions to be taken. Based on applicable codes, standards and specifications, COMPANY shall be the sole judge of the acceptability of such non-conforming conditions and corrections, and COMPANY decisions shall be final.

CONTRACTOR shall ensure that all engineering and inspection documentation is readily available to COMPANY inspectors at Supplier's/Subcontractor's facility at all times. COMPANY shall have complete access to all documentation.

12.10 QUALITY SURVEILLANCE PLAN

CONTRACTOR shall develop and implement a Quality Surveillance Plan to monitor the fabrication, assembly, erection, lead-out, transport, installation, and Start-up and Commissioning portions of the Work. This Plan shall be submitted to COMPANY for review and approval not later than sixty (60) days prior to the start of Work at each Work Site.

The quality surveillance plan shall include an organization chart showing the organization responsible for implementing quality surveillance and the relationship with other members of CONTRACTOR's organization.

Separate ITPs for each Work Site shall be prepared discipline-wise for each work activity. The construction quality surveillance plan shall reference and be supported by written procedures for controlling the issuance of and changes to the plan, reporting and resolving non-conformities detected and management of records associated with implementation of the plan.

The quality surveillance plan shall provide a description of the surveillance report format and include sufficient detail to trace the surveillance function/attribute

contained in the quality surveillance plan to the identity of the item checked during the surveillance.

Surveillance reports shall be submitted to COMPANY weekly during project unless otherwise specified in the Contract.

CONTRACTOR shall provide a resident QMS Team at all Work sites during fabrication, assembly, erection, installation, and Start-up and Commissioning phases of the Work. The inspection team shall contain qualified welding, piping, painting, instrument, electrical, and other discipline inspectors as required to ensure compliance with the Technical Requirements and permit Work to proceed in accordance with planned schedule.

13 COMPLETION AND START-UP

13.1 MECHANICAL COMPLETION

13.1.1 General

Mechanical completion for the facilities (as a whole) under this project shall be achieved in two phases i.e. First Gas Mechanical Completion and Provisional Acceptance.

CONTRACTOR shall provide experienced and qualified personnel to perform pre-commissioning activities and achieve respective mechanical completions;

CONTRACTOR shall provide all necessary pre-commissioning equipment, tools.

CONTRACTOR shall execute all scheduling, planning and progress reporting including planning meetings during the pre-commissioning and commissioning phases;

13.1.2 First Gas Mechanical Completion Certificate

Following steps shall be followed for the issuance of first gas mechanical completion certificate;

- ▶ CONTRACTOR shall conduct an in-house inspection of the relevant system(s) and generate a Punch-List.
- ▶ Once the CONTRACTOR's punch-list items are closed and pre-commissioning requirements/tests related to each individual system (portion of the Works) are completed, CONTRACTOR shall invite/request for COMPANY's inspection and provide CONTRACTOR's closed punch-list, test results, and Mechanical Completion checklist for COMPANY's review and information.

- ▶ COMPANY representative shall carry out inspection of the system/equipment and issue a punch list to CONTRACTOR within 5 days of CONTRACTOR's request to COMPANY for inspection. The punch lists will be of two types:
- ▶ ☐ Critical (items in the opinion of the COMPANY, without which safe and intended operation of the facility cannot be ensured);
- ▶ Non-Critical (items in the opinion of the COMPANY, without which safe and intended operation of the facility is not compromised in any manner and that the same could be carried out without Plant/facility shut-down);
- ▶ CONTRACTOR shall carry out all the necessary activities to clear out the punch list items. The procedure mentioned above shall be repeated until all COMPANY's punch-list items are closed and signed off by COMPANY representatives;
- ▶ CONTRACTOR shall apply for the mechanical completion certificate when all the critical punch-list items have been closed out and signed off by COMPANY representatives.

14 PROVISIONAL ACCEPTANCE

CONTRACTOR shall apply to the COMPANY for the Provisional Acceptance Certificate (PAC) when CONTRACTOR considers that all scope of work has been successfully completed, all punch-list items closed & signed off by COMPANY and all as-built drawings, documents are submitted to the COMPANY. On receipt of CONTRACTOR's application, COMPANY shall either issue a PAC or notify CONTRACTOR in writing within fourteen (14) days of any Defects in the Works undertaken by the CONTRACTOR under this Contract.

15 WARRANTY PERIOD

Warranty period shall be 12 months starting from the date specified in the Provisional Acceptance Certificate issued by COMPANY for the performed work.

16 PROJECT DOCUMENTATION

Project documentation requirements for Contract execution, as explained below, shall be complied by the CONTRACTOR.

16.1 ENGINEERING, PROCUREMENT, CONSTRUCTION PHASE

The documents and drawings, which are to be submitted to COMPANY, for review and approval, shall be proposed by CONTRACTOR and approved by COMPANY as a part of approval of Technical Document Register (TDR), during early part of project. The balance documentation in TDR shall be forwarded to COMPANY, for

information. CONTRACTOR shall submit all documents/deliverables in native format and pdf. Format, for COMPANY review, comment & approval and/or information.

16.2 FINAL DOCUMENTATION

After successful completion of provisional acceptance, CONTRACTOR shall hand-over the Final project Documentation to COMPANY as outlined below:

- ▶ The number of sets of Final Documentation to be handed over, shall be:
 - Hard Copy 2 Sets
 - Electronic Copy 2 Sets
- ▶ Hard copies shall be handed over as properly hard-cover bound volumes, with complete documentation index in each volume, in addition to the index of the respective volume. Proposal for hard-cover bound shall be submitted and agreed by COMPANY.
- ▶ Electronic copies shall be on CD with proper labels and List of Contents.
- ▶ The Final Project Documentation, shall include, but not limited to, the following:
 - ▶ Testing and Pre-commissioning Manual;
 - ▶ Final Documentation, if any As Built Documents and Drawings;
 - ▶ Construction Documentation and Records;
 - ▶ QA/QC Dossiers of all field and shop fabricated items;
 - ▶ Design section – Technical Documents, specifications, data sheets and drawings;
 - ▶ Manufacturing records;
- ▶ The complete Final Documentation shall be submitted by CONTRACTOR to COMPANY within one (1) months from issuance of PAC.

17 PROJECT CLOSE OUT

Within six (6) weeks from the Provisional Acceptance date of the complete Work, CONTRACTOR shall prepare a closeout report, for submission to COMPANY. The report shall contain a detailed narrative of all main events, major decisions undertaken, problems faced and their resolutions for technical aspects, lesson learnt, project management, engineering, procurement, installation, testing, commissioning, and interfacing.

Project close out report will include an updated project schedule, s-curves, histograms, and material tracking record showing scheduled versus actual data. It will also include the Record of Final Documentation hand-over and Demobilization.

Bidder/Contractor Qualification / Evaluation Criteria:

Sr. No	Evaluation Item	Description of Criteria	Max. Marks / Calculations	Maximum Marks	Minimum Qualifying Marks	Remarks
1.	Contractor strength to execute dismantling, tagging, packing, rigging, installation & commissioning works etc.	Contractor should have min. 07 years of experience for execution of dismantling, tagging, packing rigging, installation & commissioning works etc. in oil & gas / petrochemical industry/Refinery / Power Plants / Fertilizer	15 years exp.: 20 10 years exp.: 15 07 years exp.: 10 Less than 07 years exp.: 0	20	10	The Contractor should submit the details of scope of work along with supporting documents (Job Completion Certificates) to prove the relevant experience.
2.	Personnel capacities to be deployed.	Contractor's manpower should have min. 05 years of relevant trade experience in oil & gas / petrochemical sector:	<u>Project Manager:</u> 10 years exp.: 10 07 years exp.: 07 05 years exp.: 05 Less than 05 years: 0 <u>Site Engineer/ Supervisor:</u> 10 years exp.: 10 07 years exp.: 07 05 years exp.: 05 Less than 05 years: 0 <u>QA/QC:</u> 10 years exp.: 10 07 years exp.: 07 05 years exp.: 05 Less than 05 years: 0 <u>Fitter:</u> 10 years exp.: 10 07 years exp.: 07 05 years exp.: 05 Less than 05 years: 0 <u>Rigger:</u> 10 years exp.: 10 07 years exp.: 07 05 years exp.: 05 Less than 05 years: 0	50	5+5+5+5+5 = 25	All five trades must qualify min. marks. 0 marks in any of the trade will disqualify the category even if other trades score 15 marks as Total CV's to be provided with experience certificates.

Sr. No	Evaluation Item	Description of Criteria	Max. Marks / Calculations	Maximum Marks	Minimum Qualifying Marks	Remarks
3.	Valid certifications	ISO 9001 PEC Registration in Relevant Categ. (C4 Category or above)	05 05	05 05	05 05	
4.	Complete compliance of Scope of Work		Fully Complied: 20	20	20	The contractor should submit the complete compliance certificate with the bid, any major deviation from term and condition is not acceptable.

Total Marks= 100

Note:

1. Contractor should get minimum qualifying marks in each category as mentioned in above table. Contractor will not be qualified if above mentioned minimum qualifying marks in any category will not be scored by the contractor. In addition, the total marks should also be not less than 65. Any contractor who will score less than 65 marks shall not be considered for evaluation.
2. Contractor must have at least seven years' experience of providing dismantling, tagging, packing, rigging, transportation, installation & commissioning etc. services. Contractors having experience less than seven years will be disqualified & shall not be considered for evaluation even they score marks more than 65 as per above tabulated criteria.
3. In case of JV, JV agreement to be provided by contractor. Experience of lead JV partner will be considered only for evaluation. In no case, experience of both JV partner will be added together for marks calculation.
4. Visit is mandatory for contractor at site. Contractor should submit the undertaking of total understanding.
5. Time duration for completion of job is 06 months from handing over of site to the Contractor.
6. Contractor will submit with the bid, list of Machinery, tools and manpower to be deployed at the Project.
7. Logistics of Dismantled / Equipment / Machinery / Material from Pirkoh to Loti Gas Field will done by OGDCL.

FINANCIAL BID FORMAT/EVALUATION CRITERIA

Sr. #	DESCRIPTION	QTY.	Price in PKR (inclusive of all taxes except PST/ICT)	
			UNIT RATE	TOTAL PRICE
1.	Services cost for DISMENTALLING, RIGGING, TAGGING, PACKING, TRANSPORTATION, INSTALLATION & COMMISSIONING OF COMPRESSOR PACKAGES & AUXILIARIES as Per TOR (the cost must be inclusive of all types of equipment's, tools, machinery, consumable and PPE)	Lump sum with breakup of each activity		
2.	Services cost for DISMANTLING & INSTALLATION OF POWER AND CONTROL CABLES, PANELS, MCC, UPS AND LIGHTING ETC as Per TOR (the cost must be inclusive of all types of equipment's, tools, machinery, consumable and PPE)	Lump sum		
3.	Mob / Demob cost (Lump Sum) (to be paid after completion of work)	Lump sum		
TOTAL PRICE (inclusive of all taxes except PST/ICT) :				

Note:

- a) The prices should be inclusive of all applicable taxes, duties, levies, charges etc. (except Provisional Sales Tax/ICT Tax on Services in Pakistan).
- b) OGDCL reserves the right to delete / cancel any activity mentioned in the scope. At the time of contractor mobilization, they will be informed about such deletion/cancellation of activity and payment will be adjusted accordingly.
- c) No Advance payment will be made at the time signing the contract
- d) Contract will be awarded to financially lowest evaluated bidder on complete package basis.
- e) Payment will be made after submission of completion certificate and verified invoices duly signed by Field Manager, Relevant section Incharges.
- f) Commercial Invoice should be included the activity list with pricing verified by field official.
- g) Sales Tax invoice with Annexure 'C', must be provided.