

OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT, ISLAMABAD
FOREIGN SECTION A

(To be completed, filled in, signed and stamped by the principal)

ANNEXURE 'A'

Material PRODUCED WATER RE-INJECTION GAS ENGINE DRIVEN PUMP PACKAGE ALONG WITH COMMISSIONING ASSISTANCE
Tender Enquiry No PROC-FA/CB/P&P/PUMP-4152-A/2019
Due Date 02-12-2019
Evaluation Criteria FULL

SCHEDULE OF REQUIREMENT

Sr No	Description	Unit	Quantity	Unit Price (FOB)	Total Price (FOB)	Unit Price C & F BY SEA	Total Price C & F BY SEA	Deviated From Tender Spec. If Any
1	Produced Water Re-Injection Pump (Engine Driven) in accordance with API 674, Type: PD (Reciprocating), Preferred Suct/Disc: 4", 150lb/3" 600 (Side-Top) RF As per attached TOR.	Number	1					
2	02 Years Spare Parts for Engine, Pumps & Package (with list of spares and unit cost of each spare part separately, as an Optional Item)	Number	1					

Note:

1. Bid bond and Bid Validity: Pursuant to tender clause # 2.2, 11.4, 13 & 35.3.2, bid(s) must be accompanied by an upfront bid bond in the form of pay order/ demand draft or bank guarantee issued by scheduled bank of Pakistan or a branch of foreign bank operating in Pakistan, for an amount of **US\$ 12,000/-** (US\$ Twelve thousand only) or equivalent Pak Rupees, with technical bid and valid for **150 days** from the date of opening of the bids. The bank guarantee must be issued in accordance with the format as per Annexure-C of the tender documents.

2. Shipment from ACU member Countries: In case of shipment from ACU member countries, the LC beneficiary should be of that particular country from where the consignment is being shipped.

3. Terms and conditions: Bidders are advised to carefully read all the terms and conditions of the Tender Document available at OGDCL web site in the master tender document.

4. Summary rejection criteria: - The summary rejection criteria at clause 35 of the tender document may also be examined carefully. Any bid not meeting the criteria spelled in the clause # 35 shall be summarily rejected without any right of appeal. The detailed tender document is available on OGDCL website as "Master set of tender document-Foreign".

5. Payment Terms: Clause No: 3 of Section-III (Part-B) i.e. Conditions of Contract "Special" of Tender Document has been amended and following will be the payments methods.

i. **Tender value less than or equal to US\$ 200,000:** Payment to the Contractor/ bidder in foreign currency shall be made by establishing in favor of the Contractor an irrevocable Letter of Credit (hereinafter called the L/C). 70 % Payment (s) under the L/C will be made for the FOB/ CFR / CPT (as the case may be) price of material of each shipment upon submission of the shipping documents. Balance 30% Payment will be released after receipt, inspection and acceptance of material.

ii. **Tender value more than US\$ 200,000:** Payment to the Contractor/ bidder in foreign currency shall be made by establishing in favor of the Contractor an irrevocable Letter of Credit (hereinafter called the L/C). 80 % Payment (s) under the L/C will be made for the FOB/ CFR / CPT (as the case may be) price of material of each shipment upon submission of the shipping documents. Balance 20% Payment will be released after receipt, inspection (in addition of pre-shipment inspection) and acceptance of material.

Handwritten signature
 M. Arif (Mech)
 Ir. Engg (Mech)
 Ext-1

Terms of reference (TOR)

Scope of supply:

1. Supply/ Commissioning Assistance of Gas Engine Driven Produced Water Re-Injection Pump (Quantity: 01 No.) The OEM / supplier should provide 03 set of operation and maintenance / instruction manuals (Hard copy and soft copy) with all P&ID's, all mechanical /instrument / electrical drawings, Quality plan, list of recommended lubricants / chemical, installation drawings etc.
2. Two years recommended spare parts with list for Engine, Pump and Package (The spare parts list should be fully detailed with item wise price & quantity).
3. Selection of Package Spares are optional.

Code and Standards:

- a. API
- b. AISI
- c. BS 5514 and other Relevant British standard specifications & code of practices.
- d. ISO 8528 & 3046/1
- e. NFPA-37 (Standard for Installation and Use of Stationary Combustion Engines and Gas Turbines)
- f. ANSI
- g. ASME

Site Conditions:

- a. Max. Ambient temperature = 55 °C
- b. Minimum Ambient temperature = - 2°C
- c. Altitude (above mean sea level) = 230 ft
- d. Average barometric pressure= 14.38 Psi
- e. Relative Humidity 77% -20 % (Max-Min)
- f. Area Classification : Zone 2, Group IIA & Temperature Class T3

Technical Data.

Pump Details

- I. Positive Displacement, horizontal, Capacity 117 USGPM. Quantity: 01 No (Ref Doc. 2547-DOC-001).
- II. Pump must be manufactured as per **API 674**.
- III. Material of construction of complete Pump: Duplex Steel.
- IV. Preferred sizes for Suction & discharge nozzle: 6(VTC) "150lb RF Type & 4 "600lb RF Type. (Vender can offer suitable sizes.
- V. **Operating Conditions**

Sr. No.	Description	
1.	Type of Liquid	Water + Condensate
2.	Casing	Plunger Type
3.	Service	Produce Water
4.	No of Plunger	To meet the required parameter
5.	Capacity	Normal = 117 USGPM
6.	MAWP	Discharge Pressure=751 psi Differential Pressure= 750 psi Suction Pressure= 1 psi (Operating pressure varies as per requirement)
7.	NPSH Available	Normal = 30ft.
8.	Pumping Temperatures	Min=38 F~ Max= 100F
9.	Design Temp	180°F
10.	Corrosion Allowance	6mm

VI. Driver Details

The Gas Engine Net Output (Excluding all utilities load i.e fan, pump etc.) should be capable of developing 15% greater horsepower than the pump required power, designed for most suitable number and layout of cylinder, water cooled, naturally aspired, continuous duty, digital tachometer and all necessary gauges in instrument panel. Preferred brand of engines like CAT, Waukesha, Perkins or equivalent are acceptable engine manufacturers.

- a. Fuel Gas System: Filter & pressure regulator to regulate the available 80-100 psi fuel gas pressure with gas scrubber.
- b. Control System: Governor, Mechanical electronic Air/fuel ratio control.
- c. Cooling system: Jacket water pump, belt driven radiator fan, with level switches, thermosets for pre- alarm & trip, expansion tank, pressure gauges etc. radiator.
- d. Pneumatic Start System Air supplied at 100Psi.
- e. Guard : Meet criteria for IEC standard and OSHA regulation
- f. Muffler: Spark arresting muffler.
- g. Reduction Gear Box if required
- h. Protection System/ Securities : Standard Service indicators to be provided including but not limited to the following
 - Low Oil Pressure (Indication, Alarm& Shut Down)
 - High Water Temperature (Indication, Alarm& Shut Down)

- Engine Over Speed (Indication, Alarm& Shut Down)
- Low Lube Oil Level (Indication, Alarm& Shut Down)
- Cylinder Temperature (Indication, Alarm& Shut Down)
- Lube Oil Differential Pressure (Indication, Alarm)
- Air Filter Differential Pressure (Indication, Alarm)
- High Lube Oil Temperature (Indication, Alarm& Shut Down)
- Low Jacket Water Level (Indication, Alarm& Shut Down)
- Engine Exhaust Manifold Temperature (Indication, Alarm& Shut Down)
- Low Fuel Gas Pressure(Indication, Alarm& Shut Down)
- Radiator Cooler Fan Vibration(Indication, Alarm& Shut Down)
- Vibration Switch(Indication, Alarm& Shut Down)
- Emergency Stop(Indication, Alarm& Shut Down)
- Provide two additional out puts for Control Room from its local control panel.
 - Running Indication
 - Common Alarm

h. Air Intake system: Air Filtration for dusty/ humid environment conditions

i. Jacket Water Heater

j. Lube Oil Cooler

- VII. Local Control Panel: Start Stop Push Button, Duty/ Standby Push Button, Annunciator panel will be located on outside front of panel, PLC system, and other accessories.
- VIII. Serial Communication interface for control room with HMI for monitoring main parameter appropriate distance.
- IX. Lubricant should be mentioned in the Bid.
- X. Special Tools: Spark Plug Puller Kit, Digital Diagnostic tool.
- XI. Package utilization: Plunger pump with engine with listed items: structural steel skid, heavy duty oilfield type skid size to contain the entire pump and engine unit with following components:
- Engine adjusting base
 - Exhaust tubing and supports
 - Grouting holes
 - Lifting eyes
 - Steel metal tool box
 - Interconnection piping spool pieces on suction and discharge should be provide with appropriate bolting, gaskets and pipe components (valves, dampener brackets etc) mounted on the skid and terminated at skid edge.
 - Standard steel safety guards.
 - Paint as per standard.
- VII. Warranty: 01 year after commissioning.
- VIII. Commissioning: After receipt and acceptance of package by OGDCL, the Bidder will be responsible for provision of commissioning assistance at Qadirpur Gas Field OGDCL.

Reference Documents for Pump Design/Selection:

1. 2547-DOC-001 Pump Data Sheet
2. 2547-DOC-002 Fuel Gas Composition
3. 2547-DOC-003 Site Environmental Data

General Terms & Conditions

- A. Provide detailed technical specifications of the manufacturer in original in English with technical bid.
- B. Provide Technical Literature for specific to the **quoted model of pump & engine** along with technical bid. General brochures is not consider for technical evaluation.
- C. Provide all MTC and performance test report of the pump, engine and package with supply.
- D. 220/415 VAC@50HZ volts supply is available at proposed site. Dc converter for 12/24 Volt for Panel and securities should be provided.
- E. Detailed list of equipment/ packages clearly mentioning skid mounted equipment and loose items to be shipped.
- F. Availability of Spare Parts of the equipment being supplied with country of origin along with lead time period.
- G. List of spares for startup and commissioning. All spares for commissioning & startup shall be covered in the quoted package.
- H. Security clearance of the expatriate for commissioning assistance will be the bidder scope.
- I. Pre commissioning and Commissioning Plan/ Procedure should be submitted.
- J. Packager should submit the skid civil foundation detailed drawings before shipment of package.

Eligibility Criteria for Technical Evaluation

The following information shall be submitted along with the Technical Bid least but not limited

1. Authorization letter from manufacturer in favour of Bidder/ Packager should be provided to participate in the bid.
2. Provide the Data Sheets of main Equipment's (Pump & Engine).
3. Pump should be manufactured on API 674 standard and Manufacturer should be API certified. Valid Certificate should be provided
4. Engine should be manufactured on ISO 8528 and ISO 3046/1.
5. OEM for pump and engine should be ISO 9000~2000 Certified. Relevant Valid ISO Certificate should be provided
6. Environmental & HSE Certification should be provided.
7. QA/QC, HSE system/ procedures of your organization should be provided.
8. Provide P&ID diagram showing limits of supply prepared by supplier.

9. At least 05 Gas/Diesel Engines of same Brand of same/ higher capacities of quoted engines should already installed/ running in oil & gas sector, fertilizers & refineries with in Pakistan during last 10 years (2008~2018). Bidder should provide verifiable proof (Previous Purchase Orders of Engine). Provided details should include Model Number with Brand Name, Date of Supply, Amount of project, address of client.
10. Provide a comprehensive list and details of related project executed by the bidder/ packager during last (07) seven years (2011~2017).
11. The bidder/manufacture should confirm its ability to provide service engineer during installation, commissioning & startup of package at OGDCL site. Only boarding/lodging may be provided at site. Bidder/ manufacturer to provide drawing for foundation prior to shipment of package. Civil work will be in OGDCL scope.
12. The manufacturer of engine should have been well established workshop within Pakistan and after sale service facilities in Pakistan, (Both for spare parts and repair). The workshop setup should be authorized from Engine OEM.
13. Bidder should arrange factory acceptance test at manufacturer/ packager works. The Test run should be performed on 100% load for continuous running for minimum 24 hrs. The factory acceptance test shall be witnessed by two OGDCL engineers. All cost including air tickets, boarding, lodging, local transportation at destination per person will be in bidder/ packager scope. All other arrangements, test equipment's, documentation for FAT will also be in bidder scope. FAT procedure should be submitted with Technical Bid.
14. Statement that goods are "Brand New" and Quoted Model/ spares shouldn't be obsoleted at least (10) years after supply.
15. After receipt and acceptance of package at OGDCL Store, the Bidder/ packager will be responsible for provision of complete commissioning assistance at Qadirpur Gas Field OGDCL.
16. Should submit the complete Plan.
17. Delivery Period: 180 days C&F by Sea. (after LC)
18. **Provide Compliance of TOR dully mark and signed by bidder. Any deviation to TOR will not be acceptable.**

Financial Bid Format:

S#	Scope	Unit Price	Total Price
1.	Supply of Gas Engine Driven Produced Water Re-Injection Pump with Commissioning Assistance (Quantity: 01 No.)		
2.	02 years Spare parts for engine/Pump and Package (with list of spares and unit cost of each spare part separately, as an Optional Item)		



Evaluation will be on the basis of Sr# 1, selection of Spare parts will be on OGDCL choice.



OIL & GAS DEVELOPMENT COMPANY
PAKISTAN

(DATA SHEET)

DOCUMENT NO. : 2547-DOC-001

CLIENT		PRODUCED WATER ADEQUACY & CAPACITY ENHANCEMENT AT QADIRPUR GAS FIELD				CONSULTANT																					
		DOC. TITLE DATA SHEET FOR INJECTION WELL PUMP (RECIPROCATING PUMP)																									
		DOC. NO. 2547-PDS-014		REV 1																							
APPLICABLE TO: <input type="radio"/> PROPOSAL <input checked="" type="radio"/> PURCHASE <input type="radio"/> AS BUILT																											
FOR OIL & GAS DEVELOPMENT COMPANY LIMITED				UNIT WELL INJECTION PUMP																							
SITE QADIRPUR GAS FIELD				NO. OF PUMPS REQUIRED 2																							
SERVICE PRODUCED WATER				TYPE PD PUMP																							
MANUFACTURER				SERIAL NO.																							
NOTE: <input type="radio"/> INDICATES INFORMATION TO BE COMPLETED BY PURCHASER <input type="checkbox"/> BY MANUFACTURER																											
OPERATING CONDITION				LIQUID PROPERTIES																							
CAPACITY (USGPM) Maximum: 117 Normal: Minimum: DISCHARGE PRESSURE (PSIG) Maximum: 751 Normal: Minimum: 749 SUCTION PRESSURE (PSIG) Maximum: 1 Normal: Minimum: 0.7 DIFFERENTIAL PRESSURE (PSIG) Maximum: 750 Normal: Minimum: NPSH AVAILABLE (ft) Without Accelerated Head 30 ACTUAL VTS				TYPE OR NAME OF LIQUID Water + Condensate PUMPING TEMPERATURE, °F Minimum 38 Maximum 100 SPECIFIC GRAVITY Minimum 0.9 Maximum 1.00 VISCOSITY Minimum 0.55 Maximum 0.65 CORROSIVE / EROSIIVE AGENT Chloride & dissolved CO ₂ CHLORIDE CONCENTRATION (PPM) LIQUID <input checked="" type="radio"/> TOXIC <input type="radio"/> FLAMMABLE <input type="radio"/> OTHER																							
PROCESS DATA				SITE AND UTILITY DATA																							
Fluid Produced water Density lb/ft ³ 61.77 Viscosity cP 0.98 Pump Temperature °F 40-100 Suction Pressure psig Discharge Pressure psia Differential Pressure psig Vapour Pressure psi 2.2 Design Temperature °F 180 NPSHr ft Vendor to advise minimum requirement Corrosion Allowance 6 mm				LOCATION <input type="radio"/> INDOOR <input checked="" type="radio"/> OUTDOOR <input type="radio"/> HEATED <input type="radio"/> UNHEATED <input type="radio"/> UNDER ROOF AREA CLASSIFICATION Zone 2, Group IIA & Temperature Class T3 SITE DATA RANGE OF AMBIENT TEMPERATURE: MIN/MAX 38 / 100 °F UNUSUAL CONDITIONS <input checked="" type="radio"/> DUST <input type="radio"/> SALT ATMOSPHERE <input type="radio"/> FUMES <input type="radio"/> OTHER UTILITY CONDITIONS																							
CONSTRUCTION				DRIVER																							
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DISCHARGE	4" (VTC)	600 #	RF	top (VTC)																							
TYPE <input type="radio"/> DIAPHRAGM <input checked="" type="radio"/> PLUNGER Plunger Diameter (mm) No Req. VTS				APPLICABLE SPECIFICATIONS <input checked="" type="radio"/> API 674 POSITIVE DISPLACEMENT PUMPS <input type="radio"/> GOVERNING SPECIFICATION (IF DIFFERENT)																							
VALVE/FEED TYPE NUMBER SUCTION Plate (VTS) VTS DISCHARGE Plate (VTS) VTS				OTHER CONTROL TYPE <input type="radio"/> MANUAL <input type="radio"/> REMOTE <input checked="" type="radio"/> LOCAL <input type="radio"/> PNEUMATIC <input checked="" type="radio"/> ELECTRONIC <input checked="" type="radio"/> AUTOMATIC																							
PERFORMANCE				SHIPMENT <input type="radio"/> DOMESTIC <input type="radio"/> EXPORT <input type="radio"/> EXPORT BOXING <input type="radio"/> OUTDOOR STORAGE MORE THAN 6 MONTHS																							
RATED CAPACITY (USGPM) HYDRAULIC KW EFFICIENCY, % ACTUAL HORSE POWER, KW MAXIMUM PRESSURE (BARG) HYDRO TEST PRESSURE (BARG) VTS PLUNGER SPEED (strokes/min) (VTS) DIAMETER (mm) (VTS) STROKE LENGTH (mm) (VTS)				LUBRICATION FLUID <input checked="" type="radio"/> CRANKCASE <input type="radio"/> INTERMEDIATE <input checked="" type="radio"/> HYDRAULIC FLUID VENDOR FURNISHED RELIEF VALVE <input checked="" type="radio"/> INTERNAL <input type="radio"/> EXTERNAL NAMEPLATE UNITS <input checked="" type="radio"/> US CUSTOMARY <input type="radio"/> SI																							
QA INSPECTION AND TEST																											
<input type="radio"/> COMPLIANCE WITH INSPECTORS CHECK LIST <input checked="" type="radio"/> CERTIFICATE OF MATERIALS <input type="radio"/> FINAL ASSEMBLY CLEARANCE																											
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	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>																								
Note 1 = * VTS (Vendor To Specify) Note 2 = Vendor shall send duly furnished API-674 data sheet Note 3 = Volumetric rate is based on 100 % volumetric efficiency & Brake Horsepower/Kilowatts is based on 90 % mechanical efficiency. Note 4 = Pump skid packaged to meet the most stringent requirements of API 674																											
<table border="1"> <thead> <tr> <th>Date</th> <th>Rev</th> <th>Description</th> <th>AUD</th> <th>NWS</th> <th>AJ</th> </tr> </thead> <tbody> <tr> <td>10/15/2015</td> <td>0</td> <td>ISSUED FOR TENDER</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>PREP.</td> <td>CKD</td> <td>APPR</td> </tr> </tbody> </table>								Date	Rev	Description	AUD	NWS	AJ	10/15/2015	0	ISSUED FOR TENDER							PREP.	CKD	APPR		
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OIL & GAS DEVELOPMENT COMPANY
PAKISTAN

(FUEL GAS COMPOSITION)

DOCUMENT NO. : 2547-DOC-002



FUEL GAS COMPOSITION

The fuel gas composition for Engine driven pump is presented here under:

COMPONENT	Mole %
H ₂ S	14 ppm
CO ₂	1.93
N ₂	12.67
C ₁	83.7
C ₂	1.11
C ₃	0.30
C ₄	0.15
C ₅	0.07
C ₆ +	0.06

Handwritten signature and date: 27/11/18



OIL & GAS DEVELOPMENT COMPANY
LIMITED

(SITE ENVIRONMENTAL DATA)
DOCUMENT NO. : 2547-DOC-003

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27/11/8



1.1 ENVIRONMENTAL DESIGN CRITERIA

1.2 Scope

This specification cover minimum, site environmental data.

1.3 Site Environmental Data

The following table gives the site and environmental conditions applicable to the location and specific to design and sizing of equipment:

Description	Data	Unit
Ambient Temperature (min.)	41	°F
Ambient Temperature (max.)	131	°F
North / East	30° 17' 0" / 71° 40'	
Average Monthly rainfall	0 to 50	mm
Maximum wind velocity	100	Miles / hr
Dry bulb temperature (max)	124	°F
Dry bulb temperature (min)	25	°F
Relative Humidity (Summer)	20-70	%
Relative Humidity (Winter)	45-55	%
Wet Bulb Temperature	82	°F
Area Classification	Zone 2, Group IIA & Temperature Class T3	

11/14/18