

TERMS OF REFERENCE (TOR)

FOR

**HIRING OF HYDRAULIC AND ACID
FRACTURING SERVICES**



**TENDER ENQUIRY # PROC-
SERVICES/CB/PROD-4918/2020**

HIRING OF HYDRAULIC AND ACID FRACTURING SERVICES

SCOPE OF WORK AND TERMS OF REFERENCE (TOR)

1. INTRODUCTION

Oil and Gas Development company limited (OGDCL) intends to execute a contract for provision of hydraulic and acid fracturing services, (open hole and cased hole) for its wells at all OGDCL operated fields/blocks located anywhere in Pakistan for a period of three years (03) on rate running (as and when required) basis.

The intended activities will be carried out with Rig or Rig-less as feasible. Bids are invited to provide specialized services, expertise, materials and equipment to effectively design and implement fracturing treatment i.e Hydraulic fracturing, Acid fracturing and stimulation jobs including mini-Frac, Data Frac, and Main Frac on both conventional & unconventional reservoirs.

2. TECHNICAL DATA:

- 2.1 The candidate wells will be in various field locations in Pakistan with varying degrees of anticipated reservoir pressures, temperatures and depths.
- 2.2 Expected ranges of anticipated target reservoir and well parameters are as under:
 - i. Expected reservoir pressures may be upto $\pm 13,000$ psi.
 - ii. Reservoirs might have depleted (below hydrostatic) to over pressured (above hydrostatic).
 - iii. Expected reservoir temperatures may be up to 400 °F.
 - iv. Expected reservoir depths may be up to 6,000 M.
 - v. Reservoirs will be conventional or unconventional shales, sandstones and carbonates.
 - vi. Reservoirs are expected to produce dry gas, wet gas, gas condensate, volatile oil or crude oil with or without active aquifer present.
 - vii. Expected Presence of H₂S: upto 10 %, CO₂: upto 40 % and N₂: upto 33 %.
 - viii. Reservoirs are expected to lie in areas of low to high tectonic activity with wells encountering nearby faults.

3. TENTATIVE SCOPE OF WORK:

| Sr. | Job | Expected No. of wells | Expected No. of Frac Stages/well | Total Frac- Stages | Type of Well |
|-----|-------------------------------------|-----------------------|----------------------------------|--------------------|---------------------|
| 1 | Hydraulic Fracturing | | | | |
| 1.1 | Breakdown/Mini-frac/Data-frac tests | 3 | 2 | 06 | Vertical/Horizontal |
| 1.2 | MFT | 3 | 2 | 06 | |
| 2 | Acid Fracturing | | | | |
| 2.1 | Breakdown/Mini-frac/Data-frac tests | 3 | 2 | 06 | Vertical/Horizontal |
| 2.2 | MFT | 3 | 2 | 06 | |

4. SCOPE OF WORK FOR BIDDERS:

Scope of work for bidders includes but not limited to the following:

4.1 Candidate Selection & Evaluation

Review of the fields/wells data provided by the OGDCL, short list and finalize wells suitable for frac execution (for conventional & unconventional reservoirs) in terms of completion and work-over requirements (e.g tubing, packer, isolation plugs, perforations, wellhead requirements, sand plugs etc.), identify additional data requirements which could be provided if available. Advise about the feasibility for Multi stage completion if required.

4.2 Treatment Design and Optimization

- i. Design optimized treatments (volume and recipe) for respective wells.
- ii. Carry out necessary modeling to estimate the post treatment production attributes with a reasonable degree of accuracy, before and after the job.
- iii. Provide a detailed report on treatment design.

- iv. Provide expertise and knowledge to carry out hydraulic fracturing, acid fracturing and stimulation jobs using latest technologies.
- v. Provide well experienced personnel, equipment and materials to effectively execute the designed job.
- vi. Provide detailed programs for the planned treatment and activities.
- vii. Provide detailed reports, accurately describing the treatment implementation, assessment and future recommendations.
- viii. Provide support in acquisition and interpretation of key data required for the formulation of the Mechanical Earth Model and assessment of specific reservoir conditions and characteristics.
- ix. Carry out necessary pre-job testing and data acquisition to facilitate and ascertain treatment design parameters, chemicals and job performance.
- x. Provide post treatment support to assess job performance and remedy unplanned and unfavorable job impacts.

4.3 Hydraulic/Acid Fracture Design

Frac designs shall include detailed fracturing program with frac completion requirements, pumping schedule & specifications of frac chemicals like Acid recipes and Hydraulic Frac recipes. Contractor shall design and analyze Mini FRAC. Fracturing design shall be fine-tuned based on MiniFRAC results and lessons learnt from previous frac jobs. Contractor should be capable of simulating frac geometries in 3D frame. The contractor shall provide following for Hydraulic/Acid Frac design.

- i. Hydraulic/Acid frac job design using industry accepted/ prevalent software.
- ii. Design & provide the step by step detailed fracturing program which shall include pumping schedule and contingencies.
- iii. Shall have the capability to carry out analysis of the water/ flow back fluids/ formation cutting sample analysis for use during the hydraulic fracturing and shall recommend the same at the design and execution stage.
- iv. The contractor shall develop the frac design based on quality of reservoir (whichever dataset is available). Establish frac gradient, fracture closure pressure, simulate fracturing pressures, elastic properties, complete stress profile & stress barriers and advise about completion selection in the light of simulated parameters.
- v. Contractor shall identify and design optimal propped fracture half-length including:
 - Frac Height
 - Average propped width
 - Effective conductivity
 - Post frac hydrocarbon profile / production forecast
 - Flow back monitoring strategy
- vi. Contractor shall select & provide suitable Frac fluid & proppant, based on:
 - BHT & BHP
 - Lithology
 - Fluid compatibility
 - Adequate rheology
 - Designed effective conductivity
 - Cross linking process
 - Fluid loss additives
 - Proppant flow back control additives
- vii. Contractor shall provide full and complete support to the OGDCL Engineer to analyze the following during main frac treatment enabling him to take on-spot decisions regarding:
 - Injectivity / Breakdown
 - Transmissibility analysis using mini Frac data
 - Step rate test (Closure pressure, Extension pressure)
 - Decline (Closure pressure, Fluid efficiency)

4.4 Hydraulic Frac Fleet

The contractor must have hydraulic frac fleet complete in all respects as per requirement in technical evaluation criteria with sufficient backup, capable of fast rig up & having minimum of 20,000 hydraulic horsepower anywhere around the globe. Commitment to shift min. 12,000 HHP equipment to Pakistan within 90 days of signing of contract with OGDCL and commitment to arrange additional 8,000 hydraulic horsepower pumping capacity either through its own resources or through third party contract at well site if required as per design within 15 Days of issuance of mobilization notice. The equipment must have capability of handling surface pressure upto 15,000 psi and be able to pump proppant (PPA 0.1 to 12) at designed rate i.e up to 40 BPM or more.

4.5 Post Frac Job Review

The contractor shall conduct detailed post frac review of each well, present it to OGDCL and submit report incorporating all details of the job executed and learning for the next frac jobs.

4.6 Fracturing Process – Campaign

- i. Contractor to clearly communicate & submit the screening, selecting & upgrading criteria for Hydraulic/Acid fracturing treatment to OGDCL for approval.
- ii. Contractor shall evaluate, screen & select feasible frac candidates and submit their proposal to OGDCL for approval with clearly defined reasons for selecting or not selecting candidate wells.
- iii. Contractor shall submit the frac designs of approved candidate wells to OGDCL for approval prior to job.
- iv. Contractor shall select and provide suitable Hydraulic/Acid Frac recipes with the lab test results for fluid and proppant at bottom hole reservoir conditions (including but not limited to HTHP rheology and proppant crush test, with tracking proof) for approval to OGDCL.
- v. Contractor shall design, execute and analyze MiniFRAC on each selected well after approval from OGDCL.
- vi. Contractor shall submit any required modifications in frac designs after MiniFRAC analysis for approval.

4.7 Materials and Chemicals:

- 4.7.1 As per job specifications, arrangement of materials for the planned activities shall be the responsibility of the contractor having a proven track record of delivering uninterrupted supply of material, proppant & chemicals from a reputable manufacturer.
- 4.7.2 The contractor will provide chemicals and materials:
 - i. To be used in low to high pressure reservoirs.
 - ii. To be used in low to high temperature reservoirs.
 - iii. To be used in low to high stress environments.
 - iv. Third party vendor certifications of materials and chemicals.
 - v. Additional 15 - 16% proppant and chemicals to the design requirement at location, to accommodate change in job design.
 - vi. Onsite materials (Proppant & Frac Fluid additives, etc.) shall be of same batch & Lot numbers as per fluid lab testing reports.

5. TERMS AND CONDITIONS

- 5.1 The scope of work is tentative, OGDCL reserve the right to increase or decrease the scope of work without change in prices and terms & conditions.
- 5.2 Bidder must agree and give clean acceptance of all operational and financial terms & conditions and technical specifications & personnel requirements set forth in this tender document.
- 5.3 The bidder to establish equipment base and maintenance facility set up in Pakistan within 90 days of signing of contract with OGDCL.
- 5.4 Equipment, tools and personnel covering full scope of services must be available with the bidder in Pakistan or abroad at the time of submission of bid. In case of availability outside Pakistan, bidder shall make equipment, tools and personnel covering full scope of services available in Pakistan within 90 days of signing of contract.
- 5.5 The maximum time for finalization and submission of frac design for any specific well must not exceed 45 days after provision of all available data by OGDCL to the contractor.

- 5.6 The maximum mobilization period to mobilize equipment and crew to well site is 15 days after job finalization.
- 5.7 All certificates, documents, proof of work etc. should be in English language, if not then they shall be accompanied with certified translation to English language.
- 5.8 The Bidder to confirm the possession of at least one (01) set of complete fracturing setup (20,000 HHP) with sufficient backup anywhere around the globe to perform proppant and acid fracturing.
- 5.9 The complete fracturing setup minimum 12,000 HHP with necessary backup must remain available in Pakistan throughout the contract period.
- 5.10 Adequate back-up services / equipment should be available on site free of cost to avoid delay in operations.
- 5.11 A free of cost visits to wellsite prior to start of any operation needs to be made by bidder to provide feedback for any required arrangements.
- 5.12 All equipment/tools quoted by the bidder must be in good working condition with valid inspection and calibration certificate(s) for the performance of job(s). OGDCL reserves the right to inspect quoted equipment and tools as part of technical evaluation and at any time during the duration of the contract.
- 5.13 The bidder to confirm compliance with OGDCL HSEQ Policy.
- 5.14 Personnel must be:
 - i. Sufficiently experienced to efficiently carry out the intended tasks.
 - ii. Be able and willing to work anywhere in Pakistan.
 - iii. Capable to carry out 24 hours Frac operations.
- 5.15 Contractor must provide suitable equipment:
 - i. To meet the high pressure pumping requirements.
 - ii. To meet the high rate pumping requirements.
 - iii. To meet low rate pumping requirements.
 - iv. That is versatile and rugged enough to perform job in extreme environments.
 - v. Suitable for sour services.
 - vi. For performing operations with Rig at location and in Rig-less environments.
 - vii. For pumping volatile and abrasive materials and chemicals.
 - viii. For complementing the available on-site equipment such as x-overs and tree savers/ frac trees etc.
- 5.16 Arrangement of materials and chemicals for the planned activities shall be the responsibility of the contractor. The contractor must provide chemicals and materials:
 - i. To be used in low to high pressure reservoirs.
 - ii. To be used in low to high temperature reservoirs.
 - iii. To be used in low to high stress environments.
 - iv. To be used in conventional and unconventional reservoirs.
 - v. From third party vendors in case not available with the contractor along with third party certifications of the materials and chemicals.
 - vi. To handle the post job issues as per best industry practices (proppant flow back control materials, polymer damage and emulsion treating materials etc.).
- 5.17 Contractor shall carry out necessary pre job lab testing and data acquisition to facilitate and ascertain treatment design parameters witnessed by OGDCL representative.
 - i. Carry out pre-job water analysis.
 - ii. Carry out all required pre-job frac fluid testing on location.
 - iii. Carry out proppant sieve analysis.
- 5.18 Provide post treatment support to assess job performance.
- 5.19 All responsibility shall rest with the contractor for any third-party equipment and personnel supplied by the contractor.
- 5.20 OGDCL shall not be accountable for any personnel injury during Mob/De-mob, loading, offloading and during the course of operations at wellsite. Health insurance of the offered crew will be responsibility of the bidder.
- 5.21 Bidder to arrange all safety equipment/services at their own for their personnel's whichever is required by them for working in extreme H2S environment with no additional cost to OGDCL.

- 5.22 Treatment / management of hazardous gases and waste water/material if any will be the responsibility of contractor without any additional cost to OGDCL.
- 5.23 All third-party equipment supplied must be accompanied with applicable quality and safety standards and/or pressure control manual.
- 5.24 Bidder must quote the cost of every item of financial bid format otherwise incomplete bid will not be entertained. Bidder must strictly follow and quote prices as per financial bid format. No clause with "if & but" having financial impacts will be entertained and in such case bid will be treated as nonresponsive.
- 5.25 Minimum hydraulic horsepower requirement is 12,000 HHP, however the hydraulic horsepower may increase as per actual design. Equipment upto 20K HHP needs to be arranged by bidder as and when required by OGDCL within a mobilization notice of 30 days.
- 5.26 Equipment and crew charges for MFT upto 16,000 HHP will be as package however OGDCL will pay for equipment standby charges, crew operating and standby charges, volume pumping charges, mob/de-mob charges both for equipment and crew against additional HHP i.e above 16,000 HHP on pro-rata basis i.e additional HHP utilization (US\$) = Rate for 16,000 HHP(US\$)/16,000 HHP *Extra hydraulic horsepower.
- 5.27 Contractor to provide pressure testing services for downhole frac string and surface testing hook up free of cost.
- 5.28 If contractor's fracturing equipment is used at well site for operations other than CI/BDI/MFT e.g for circulation, well control or other services, payment to the service company shall be made as per rates quoted against BDI for volume pumping and crew operating charges only.
- 5.29 A price list of additional / relevant equipment / services/chemicals may be provided with the bid document which will be used for reference purpose for obtaining additional approvals whichever is required for utilization as per actual requirement. However, the prices should not be included in financial bid. In case of any deviation from financial bid format the bids will be declared non-responsive.
- 5.30 The bidder is required to submit the post job report within one month after execution of job, otherwise invoices will not be accepted for payment.
- 5.31 Bidder to quote same unit rate for same type of chemicals in all tables. In case different unit rate for same chemical or line item is quoted, the lowest quoted unit rate will be applicable.
- 5.32 Crew/equipment charges shall cover full crew/equipment as required for the said services. No additional charges shall be paid for any additional personnel/equipment whatsoever.
- 5.33 If any of the equipment fails/breaks down during operation at wellsite and causes delay, no operating/standby charges for crew/equipment shall be paid during shut down period.
- 5.34 If main frac job is performed on the well, the charges for BDI/CI will not be applicable.
- 5.35 If company is mobilized for MFT but only BDI/CI test is performed than OGDCL will pay charges as per rates quoted for BDI/CI however, Mob/De-mob for main frac equipment and crew will be paid.
- 5.36 OGDCL shall not be liable to pay mobilization/demobilization charges of any tools/equipment for bringing them to Pakistan that may be located elsewhere during execution phase of the contract/LOI.
- 5.37 Mob/De-Mob charges (Per Km) will be calculated according to the distance as per OGDCL distance chart. Mob/De-mob of equipment and crew will be paid as per actual i.e. location from where the equipment and crew are mobilized within Pakistan or from contractor's base to well whichever is lesser.
- 5.38 Lighting and power source/generator at well site is to be arranged by the contractor.
- 5.39 BDI/CI/MFT equipment must equipped with mobile/field laboratory and remote real time data transmission/acquisition system.
- 5.40 If, after mobilization, job is cancelled before reporting at site than only job cancellation charges will be paid. No mobilization / de-mobilization and stand by charges for crew / equipment will be paid.
- 5.41 If, after mobilization, job is cancelled after reporting at well site than job cancellation charges along with mobilization / de-mobilization charges for both crew and equipment will be paid. No stand by charges for crew / equipment will be paid.

- 5.42 No job cancellation charges shall be paid if the call out is cancelled before the equipment is mobilized from the contractor's base.
- 5.43 Standby charges for MFT/BDI/CI equipment and respective crew will be applicable after completion and successful pressure testing of surface hook up of fracturing equipment.
- 5.44 Standby charges for MFT/BDI/CI equipment and respective crew will cease as soon as the equipment and crew is released by OGDCL.
- 5.45 Operating charges for both Frac Tree/Isolation tool and respective crew will only be applicable when MFT/BDI/CI is being executed and during flowback.
- 5.46 Crew will be paid operating charges on the day of fluid pumping only.
- 5.47 There will be no standby of equipment on the day of fluid pumping.
- 5.48 Partial availability of crew or equipment will not attract any charges.
- 5.49 OGDCL has the sole discretion to utilize the services as whole or partial and the bidder has to provide the services as per OGDCL requirement.
- 5.50 During traveling (mobilization/de-mobilization) days, no operating/stand-by/rental charges will be admissible and only Mob-De-Mob will be payable after reporting at well site.
- 5.51 Bidder must quote standby charges for equipment and crew not more than 50% of operating charges otherwise bids will be declared non-responsive.
- 5.52 Evaluation tables are for evaluation purpose only, number of wells, frac stages, frac designs, Frac types, days, quantities and millage mentioned are for evaluation purposes payment will be made as per actual job.
- 5.53 Frac stages/well may increase or decrease and accordingly number of wells may increase or decrease. The contract will remain valid till completion of all frac jobs i.e 12 or number of wells i.e 06 whichever comes later during the contract period i.e 03 Years.
- 5.54 Design optimization charges (including but not limited to Candidate Selection, Mechanical Earth Model, 3D Frac Modeling, Production forecasting etc.) will be only applicable if MFT job executed, incase MFT job is not executed designing charges will not be applicable.
- 5.55 Design optimization charge if applicable shall be paid once per well regardless of number of stages per well.
- 5.56 OGDCL reserves the right to call for breakdown injection (DFIT/Injectivity), calibration (Mini frac/Data frac) & main frac treatments separately and charges shall prevail accordingly as per the services requested.
- 5.57 For Prop frac/acid frac services, recipe must contain chemicals for maximum duration tubing protection and iron control.
- 5.58 There would be no additional charges for pulsated/channeled/conductive fracturing pumping mode except those mentioned otherwise.
- 5.59 Fluid charges shall be paid as per volume mixed onsite and verified by OGDCL representatives and proppant shall be paid as per physically pumped in the well.
- 5.60 If equipment/material which is not covered in this contract is air freight on OGDCL request to meet urgency before agreed time line of job, charges will be paid at actual.
- 5.61 If during job, it is ascertained that the service company is unable to perform / accomplish the job satisfactorily, OGDCL reserves the right to demobilize the service company. Invoice for unsuccessful jobs will not be entertained for any payment.
- 5.62 Fuel, oil, chemicals, items (proppant etc.), water, lubricants and transport that may be required by service company for operational purpose will be charged to service company as per actual and the cost will be deducted from the invoice.
- 5.63 Contractor to arrange for environment friendly disposal of waste produced as result of its activities.
- 5.64 Boarding / Lodging, laundry and security services would be provided free of cost by OGDCL to the service company crew while working in the field.
- 5.65 OGDCL reserves the right to ask bidder for the replacement of any of their personnel who is / are unacceptable to OGDCL for his / their incompetence or misbehavior at contractor's expense.
- 5.66 OGDCL reserves the right to accept or reject any/all bid (s) or annul the entire bidding process at any time prior to award of contract without taking any responsibility of the affected bidder(s) and is not bound to justify the reasons to the affected bidder(s).

6. Duration of Contract:

- 6.1 The contract will be on rate running (as and when required) basis. The duration of the contract will be for three (03) years starting from the date of mobilization to first well. Further extension in the contract will be made based on mutual consent of both parties in writing.
- 6.2 The bid proposal/rates should remain valid unconditionally during the period of contract.

7. Payment Terms:

- 7.1 The payments to the service company will be made through cross cheque in 100% Pak rupees, at actual, against verified invoices at official exchange rate prevalent on the date of payment.
- 7.2 The prices quoted by bidder in financial bid should be in US\$. The quoted price should be fixed/firm and are inclusive of all applicable taxes, duties and Levies etc. except Provincial Sales Tax/ICT Tax on services.

8. Bid Bond:

Bid bond/Bid security amounting to **USD 60,000/-** (US Dollars Sixty Thousand only) is to be attached/provided **with technical bid**. Please see master set of tender document for further details.

9. Mode of Procurement:

Bids against this tender are invited on **“Single Stage Two Envelope Bidding Procedure”** through press tendering, therefore, the bidders shall submit one original technical and one original financial bid along with soft copy of technical bid. Unpriced financial bid should be the part of technical bid.

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

10. TECHNICAL EVALUATION:

All the bidders are required to provide a compliance certificate to the following. The bidders must fulfill the below mentioned minimum requirements for technical qualification even single **“No”** in below mentioned technical evaluation tables may result in disqualification. If equipment is available outside Pakistan than bidder should make commitment to shift the same to Pakistan within 90 Days of signing of contract.

EQUIPMENT/ TOOLS (ALL EQUIPMENT MUST H2S COMPLAINT)

| Sr. | Description | Availability |
|-----|---|--------------|
| 1 | FRAC PUMPING CAPACITY (Company owned) 20,000 HHP or equivalent bidder’s own pumping capacity in working condition suitable for pumping corrosive, abrasive and non-corrosive fluids with minimum 15,000 Psi working pressure, pumping capacity min 5 bpm each pump to be available with the bidder anywhere around the globe Minimum 12,000 HHP equipment to remain in Pakistan during the entire period of contract with OGDCL. For pumping capacity requirement up to 20,000 HHP, contractor to provide affidavit regarding arrangement of additional pumping capacity wherever required within 15 days of mobilization notice. | Yes/No |
| 2 | Blender(s) (Company owned) Capable of blending and pumping up to 50-60 bpm of fracturing slurry. Capable of transmitting real time data of pumping parameters to acquisition system. | Yes/No |
| 3 | Hydration Unit / PCM (Company owned) Capable of blending and pumping up to 50-60 bpm of fracturing fluid comprising of brine, slick water, polymer and required liquid additives with specific gravity ranging from 1.2 – 7.2. Capable of transmitting real time data of pumping to acquisition system. The mixer must continuously meter and hydrate the polymer by blending it with water and maintain constant hydrostatic head for the blender. | Yes/No |

| | | |
|----|--|--------|
| 4 | Frac Tanks (Company owned/Third Party arrangement) The company to provide on-site fluid storage capacity in line with job requirement. In case of third party arrangement please provide valid contract over a period of 4 Years. | Yes/No |
| 5 | Electronic Data Acquisition System (Company owned) Ability to remotely control the fracturing operation at wellsite. Acquisition and transmission of real time data remotely to OGDCL office from any location | Yes/No |
| 6 | Electronic Pressure Transducer 15 K rating Annulus and tubing/casing pressure gauges | Yes/No |
| 7 | Portable Laboratory Cabin/Frac Van (Company owned) Field lab for quality check of slurry/fluid being pumped must be equipped with following minimum testing equipment <ul style="list-style-type: none"> • Fann35 viscometer (or equivalent). • HPHT Rheometer (for measuring rheology at simulated downhole conditions). • Blender with adjustable rheostat to control mix speed. • Properly calibrated digital pH probe (capable of measuring up to 0.1 pH). Narrow range pH (5-8 and 8-12) paper as back-ups for the meter and to provide an additional calibration of the pH meter • Thermometer. • Graduated cylinder or similar for liquid measurement. • Standard water analysis kit. • 1 mL – 10 mL plastic syringes. • Suite of sand screens to perform API spec sieve analysis. • Stopwatch. • Weight balance. • Heat bath and/or microwave to heat samples and confirm activity of thermal cross-linker. • Containers to collect onsite samples of all chemicals. • Digital lab weight scale (accurate upto 0.001 gms). • Density measurement device. • Performing sieve analysis for proppant. • Mud balance scale. Calibration documents for all equipment should be made available at wellsite. | Yes/No |
| 8 | Regional Lab(Company owned/third party) Capable of simulating downhole pumping conditions. All fluid formulations for proposed well should be validated by tests performed at this lab. Not only must every recipe be validated and documented, but every chemical batch or lot should be tested as well. Capable of doing water analysis from the source identified by client. In case of third party arrangement please provide valid contract over a period of 4 Years. | Yes/No |
| 9 | Availability of high pressure fracture manifold (Min 15,000 psi ratings) | Yes/No |
| 10 | Sand feeder (Company owned) Minimum on-site capacity requirement is 650,000 lbs proppant that can be pumped in a single job without the need of filling during pumping operations. | Yes/No |
| 11 | Proppant Flow Back Prevention Availability of proppant flow back prevention material adding system. | Yes/No |
| 12 | Ball Catcher Availability of ball catcher having provision to retrieve frac balls from the chamber by closing the isolation valve. Minimum pressure rating should be 15k psi. Ball sizes from 1" to 3.5". | Yes/No |

| | | |
|----|---|--------|
| 13 | Ball launcher Availability of ball launcher with controlled ball drop mechanism for use in multi stage frac operations. Launcher deploys balls into wellbore during fracturing stages. Ball sizes from 1" to 3.5". Minimum pressure rating should be 15k psi. | Yes/No |
| 14 | Availability of back up hydraulic system to be used in case of failure of sand delivery system. | Yes/No |
| 15 | Liquid Additive System (Company owned) Equipped with flow meter with accuracy up to $\pm 1\%$ Pump from the fluid storage tank and discharged to the suction of a centrifugal pump, or to the suction of the discharge of the mixer. | Yes/No |
| 16 | Availability of fluid transfer pumps and hoses. | Yes/No |
| 17 | Availability of 2" and 3" High Pressure Pipping with minimum 15,000 Psi working pressure | Yes/No |
| 18 | Water Filtration Unit (Company owned) Dual cartridge filter skid with ability to filter up to 100 microns or as per requirement. | Yes/No |
| 19 | Tool Basket Cross over flange assembly for production well. Frac cross and piping, chucks for injection and flow back. Any other crossover to hook up equipment to the well head/ X-mas tree. | Yes/No |
| 20 | Availability of Annulus Pump to assist with pressure differential for burst prevention of tubing. | Yes/No |
| 21 | Availability of suction and discharge hoses. | Yes/No |
| 22 | Availability Safety Shower. | Yes/No |
| 23 | Wellhead Isolation Tool and Frac Tree (Company owned/Third party) At least one each for all sizes, 10K & 15K rating each, (compatible X-mas tree size: 2-9/16"x5K, 3-1/8"x5K, 3-1/16"x10K, 4-1/16"x10K, 3-1/16"x15K, 4-1/16"x15K). In case of third party arrangement please provide valid contract over period of 4 Years. | Yes/No |
| 24 | Availability of appropriate lighting required during Rig/Rigless operations for frac operations along with power source/generator for this purpose. | Yes/No |
| 25 | Availability of cross over for any job in line with well head connection & pumping equipment. | Yes/No |

11. DESIGN AND MODELLING CAPABILITIES

| Sr. | Description | Availability |
|-----|---|--------------|
| 1 | Software capabilities to Perform fracturing and stimulation treatment design. | Yes/No |
| 2 | Software capabilities to model post treatment response. | Yes/No |
| 3 | Software capabilities to simulate treatment implementation. | Yes/No |
| 4 | Software capabilities for evaluating & testing data for MiniFRAC. | Yes/No |
| 5 | Software capabilities for post-frac treatment evaluation. | Yes/No |

12. COMPANY PROFILE

| Sr. | Description | Availability |
|-----|--|--------------|
| 1 | Registered company inside or outside Pakistan with minimum registration period of 05 years. Provide documents for registration. | Yes/No |
| 2 | Bidder's History (attach proof) Providing the hydraulic and acid fracturing services for five (05) or more years in Pakistan or elsewhere around the globe. | Yes/No |
| 3 | Bidder's experience (attach proof) Performed at least following number of jobs in Pakistan or elsewhere around the globe during last 5 years (attach tabulated list with Client Name, brief job details, Date, Location etc.). | Yes/No |

| | | |
|----|--|--------|
| | Hydraulic fracturing: 100 jobs with 50 jobs outside country of origin. Acid fracturing: 100 jobs with 50 jobs outside country of origin. Performed pre frac job design: 100 jobs with 50 jobs outside country of origin. Performed post frac job evaluation: 100 jobs with 50 jobs outside country of origin. | |
| 4 | Fully Operational Base in Pakistan (<i>liable to inspection by OGDCL</i>) Contractor to have fully operational base in Pakistan. In case the contractor has no permanent establish base in Pakistan then they have to establish the same within 90 days of signing of contract. | Yes/No |
| 5 | Availability of 3D MEM capability (Software and Expertise). | Yes/No |
| 6 | Contractor R&D structure attach proof, R&D budget allocation in audited financial statements etc. | Yes/No |
| 7 | Bidder to provide standard operating procedure (SOPs) for Hydraulic/Acid fracturing jobs along with technical specifications and inspection certificates of pressure control equipment (PCE) and frac equipment | Yes/No |
| 8 | Bidder to provide certified pressure control equipment for standard fracturing operations. | Yes/No |
| 9 | Equipment should be in good condition and of latest model as per industry standards, accompanied with valid maintenance and inspection certificates, liable to inspection and final approval by OGDCL. | Yes/No |
| 10 | Bidder, to provide free of cost basic and advanced training to two (02) OGDCL Engineers every year. Share a structured training program c/w list of courses/certifications and location where training will be performed. | Yes/No |

13. PERSONNEL

| Sr. | Qualification/Experience of crew members | Availability |
|-----|--|--------------|
| 1 | Frac Master / Specialist (at least 1 per job) Graduate Engineer with minimum 07 years of exclusive experience of planning, designing and executing hydraulic/acid fracturing along with relevant training(s) and certified courses etc. (Attach CV and relevant training certificates) | Yes/No |
| 2 | Frac Engineer (at least 2 Engineers per job) Graduate Engineer with minimum 05 years of exclusive experience of executing hydraulic/acid fracturing jobs. (Attach CV and relevant training certificates) | Yes/No |
| 3 | Blender operator + chief mechanic (at least 5 per job) Should have at least 7 years of exclusive experience as chief mechanic of the equipment and working as a blender operator. (Attach CV and relevant training certificates) | Yes/No |
| 4 | Frac Tree/Isolation Tool Engineer Three (3) years' technical diploma and at least seven (7) years of exclusive experience with Frac tree/Isolation tool installations, servicing, testing and dismantling. (Attach CV and relevant training certificates) | Yes/No |
| 5 | Frac Crew Bidder to provide all necessary crew to carry out the fracturing jobs successfully. Local expertise is preferred. (Attach CV and relevant training certificates) | Yes/No |

14. HSEQ

| Sr. | Description | Availability |
|-----|---|--------------|
| 1 | Availability of written and approved HSE and Quality Policy | Yes/No |

| | | |
|----|---|--------|
| 2 | Availability of procedures to fulfill minimum HSEQ requirements (i.e. Risk assessment, Environmental risks, Emergency response procedures waste management etc.) | Yes/No |
| 3 | Dedicated HSEQ person available to handle HSEQ matters. | Yes/No |
| 4 | Hazard Identification & Risk Assessment / Job Hazard Analysis are conducted before start of job and appropriate preventive measures taken to address hazards. | Yes/No |
| 5 | Environmental Aspect Impact Analysis is carried out before start of job and mitigation measures taken to prevent environmental damage. | Yes/No |
| 6 | Availability of procedures for environment friendly waste disposal of hazardous and non-hazardous waste. | Yes/No |
| 7 | Availability of emergency response plan with responsibilities. | Yes/No |
| 8 | Availability of required emergency handling equipment including but not limited to appropriate number of fire extinguishers, first aid boxes, stretcher, SCBA, eye wash stations and multi-gas detectors. | Yes/No |
| 9 | Availability of incident reporting procedure. | Yes/No |
| 10 | Contractor shall comply with Health & Safety Regulations Mines Act 1923, The Oil & Gas (Safety In Drilling & Production Regulations 1974). | Yes/No |
| 11 | Contractor shall comply with Environmental Protection ACT 1997 and National Environmental Quality Standards. | Yes/No |
| 12 | All staff is trained in basic HSEQ trainings i.e. Fire Fighting, First aid, H ₂ S. | Yes/No |
| 13 | All required personal protective equipment available to all its staff and subcontractors. | Yes/No |
| 14 | PTW system available and strictly followed | Yes/No |
| 15 | Travelling Policy / Procedure available | Yes/No |
| 16 | Cranes, Fork lifters are third party certified. Certificates to be provided before the execution of job. | Yes/No |

FORMAT FOR RATES

| DESIGN OPTIMIZATION/FRAC FEASIBILITY STUDY | | | | |
|--|--|---------|----------------------|---------|
| Sr. | Description | UOM (U) | Unit Rate (US\$/UOM) | |
| | | | Operating | Standby |
| 1 | Design Optimization for Hydraulic Frac | Well | | |
| 2 | Design Optimization for Acid Frac | Well | | |

| BREAK DOWN INJECTION(BDI)/CALIBRATION INJECTION (CI) | | | | |
|--|---|---------|----------------------|---------|
| Sr. | Description | UOM (U) | Unit Rate (US\$/UOM) | |
| | | | Operating | Standby |
| 1 | Break Down Injection (BDI)/ Calibration Injection (CI)-Equipment-standby | Day | N/A | |
| 2 | Break Down Injection (BDI)/ Calibration Injection (CI)--Crew | Day | | |
| 3 | Volume pumping charges for BDI/CI | BBL | | |
| 4 | Break Down Injection (BDI)/ Calibration Injection (CI)-Equipment Mob/De-mob | KM | | |
| 5 | Break Down Injection (BDI)/ Calibration Injection (CI)-Crew Mob/De-mob | KM | | |

| MAIN FRAC TREATMENT(MFT)-CONVENTIONAL/CHANNELED | | | | |
|---|--|---------|----------------------|---------|
| Sr. | Description | UOM (U) | Unit Rate (US\$/UOM) | |
| | | | Operating | Standby |
| 1 | MFT (upto 16,000 HHP) Equipment -standby | Day | N/A | |
| 2 | MFT (upto 16,000 HHP) crew | Day | | |
| 3 | Volume pumping charges for MFT (upto 16,000 HHP) | BBL | | |
| 4 | MFT (upto 16,000 HHP) Equipment Mob/De-mob | KM | | |

| | | | |
|---|---------------------------------------|----|--|
| 5 | MFT (upto 16,000 HHP) Crew Mob/De-mob | KM | |
|---|---------------------------------------|----|--|

| CRANE/ FORK LIFTER/FAC TREE/ISOLATION TOOL | | | | |
|--|--|---------|----------------------|---------|
| Sr. | Description | UOM (U) | Unit Rate (US\$/UOM) | |
| | | | Operating | Standby |
| 1 | Frac Tree/Isolation tool 15k psi - Equipment | Day | | |
| 2 | Frac Tree/Isolation tool 15k psi - Crew | Day | | |
| 3 | Crane (50 ton) with operator | Day | | |
| 4 | Fork lifter (5 ton) with operator | Day | | |
| 5 | Frac Tree/Isolation tool 15k psi - Equipment Mob/De-mob. | KM | | |
| 6 | Frac Tree/Isolation tool 15k psi - Crew Mob/De-mob | KM | | |
| 7 | Crane (50 ton) with operator Mob/De-mob | KM | | |
| 8 | Fork lifter (5 ton) with operator Mob/De-mob | KM | | |

| CANCELLATION CHARGES | | | | |
|----------------------|-------------------------|---------|----------------------|---------|
| Sr. | Description | UOM (U) | Unit Rate (US\$/UOM) | |
| | | | Operating | Standby |
| 1 | BDI Cancellation Charge | Nos. | | |
| 2 | CI Cancellation Charge | Nos. | | |
| 3 | MFT Cancellation Charge | Nos. | | |

| LABORATORY SERVICES | | | | |
|---------------------|---|----------|----------------------|---------|
| Sr. | Description | UOM (U) | Unit Rate (US\$/UOM) | |
| | | | Operating | Standby |
| 1 | Frac fluid compatibility testing | Per test | | |
| 2 | Sand/proppant grain size testing | Per test | | |
| 3 | Sand/proppant crush resistance testing | Per test | | |
| 4 | X-ray diffraction mineralogy analysis | Per test | | |
| 5 | Scanning electron microscopic analysis | Per test | | |
| 6 | Triaxle core testing | Per test | | |
| 7 | Particle size distribution & characterization | Per test | | |
| 8 | Core flow retained permeability testing | Per test | | |
| 9 | Capillary suction time test | Per test | | |
| 10 | Proppant embedment test | Per test | | |
| 11 | Any other test | Per test | | |

Note: Any other test/s required for fracturing (CI/BDI/MFT/design/verifications/calculation and/or any other technical reason) may be included and rate per test may be provided in the table above. The sum of all additional tests will constitute Sr. no 11 of the above-mentioned table. No additional charges for any other test will be paid and if required will be provided by the contractor free of cost.

| Slick Water Recipe upto 400 °F | | | | | | |
|--------------------------------|--------------|--------------|-----|---------------|------|-------------|
| Sr. | Product Name | Product Code | UOM | Unit Rate/UOM | Qty. | Rate (US\$) |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| Recipe cost(US\$)/ BBL | | | | | | |

Note: Slick water recipe include but not limited to Friction reducers, bactericide, surfactant, clay stabilizers etc.

| Miscellaneous Material | | | | |
|------------------------|--|---------|----------------------|---------|
| Sr. | Description | UOM (U) | Unit Rate (US\$/UOM) | |
| | | | Operating | Standby |
| 1 | Proppant (All Sizes) | Lbs. | | |
| 2 | Blend for Pulsated/Channeled/Conductive fracturing | Lbs. | | |
| 3 | KCL brine | Gal | | |

| Recipe for Hydraulic Frac | | | | | | | | | |
|---------------------------|-----------------------|--------------|----------------|-----|-------------|-------------|--------------|-------------|--|
| Sr. No. | Product Name | Product Code | Unit Rate /UOM | UOM | Upto 350 °F | | Above 350 °F | | |
| | | | | | Qty. | Rate (US\$) | Qty. | Rate (US\$) | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | Recipe cost(US\$)/BBL | | | | | | | | |

Note: Frac fluid recipe should include all required additives as per formation/reservoir properties and compatibility issues i.e viscosifier, breaker, breaker aid, cross-linkers, bactericides, anti-foaming/foaming agents, clay stabilizers, surfactants, polymers, demulsifier, anti-sludge agent, friction reducers, activators, buffers, pH-stabilizers, temperature stabilizers. etc.

| Recipe for Acid Frac (HCl Base) | | | | | | | | | |
|---------------------------------|------------------------|--------------|----------------|-----|-------------|-------------|--------------|-------------|--|
| Sr. No. | Product Name | Product Code | Unit Rate /UOM | UOM | Upto 350 °F | | Above 350 °F | | |
| | | | | | Qty. | Rate (US\$) | Qty. | Rate (US\$) | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | Recipe cost(US\$)/ BBL | | | | | | | | |

Note: Acid fluid recipe should include all required additives as per formation/reservoir properties and compatibility issues with maximum inhibition time and 2,000 PPM iron control i.e HCL, Gelling agent, cross-linkers, chelating agent, corrosion inhibitor, corrosion inhibitor aid, demulsifier, surfactant, clay stabilizer, H2S scavengers, H2S-CO2 corrosion inhibitor etc.

FINANCIAL EVALUATION

| TABLE 1: DESIGN OPTIMIZATION/FRAC FEASIBILITY STUDY | | | | | | |
|---|--|----------|---------|---------------|----------|------------|
| Sr. | Description | Qty. (Q) | UOM (U) | Unit Rate (P) | Total | |
| | | Nos. | | (US\$/Well) | =(P X Q) | US\$ |
| 1 | Design Optimization For Hydraulic Frac | 3 | Well | | | |
| 2 | Design Optimization For Acid Frac | 3 | Well | | | |
| Estimated cost for 06 wells (US\$) | | | | | | Sum(R1:R2) |

| TABLE 2: BREAK DOWN INJECTION(BDI)/CALIBRATION INJECTION (CI) | | | | | | |
|---|---|----------|---------|---------------|----------|------|
| Sr. | Description | Qty. (Q) | UOM (U) | Unit Rate (P) | Total | |
| | | Nos. | | (US\$/UOM) | =(P X Q) | US\$ |
| 1 | Break Down Injection (BDI)/ Calibration Injection (CI)- Equipment Standby | 8 | Day | | | |
| 2 | Break Down Injection (BDI)/ Calibration Injection (CI)- Crew Operating | 4 | Day | | | |
| 3 | Break Down Injection (BDI)/ Calibration Injection (CI)- Crew Standby | 8 | Day | | | |
| 4 | Volume Pumping charges for BDI/CI | 3,700 | BBL | | | |

| | | | | | |
|---|--|-------|----|--|-------------------|
| 5 | Break Down Injection (BDI)/ Calibration Injection (CI)- Equipment Mob/De-mob | 2,600 | KM | | |
| 6 | Break Down Injection (BDI)/ Calibration Injection (CI)- Crew Mob/De-mob | 2,600 | KM | | |
| 7 | Estimated cost/well (Estimated 02 Stages/well) | | | | Sum(R1:R6) |
| 8 | Estimated cost for 06 wells | | | | = 06*R7 |

TABLE 3: MAIN FRAC TREATMENT(MFT)

| Sr. | Description | Qty. (Q) | UOM (U) | Unit Rate (P) | Total =(P X Q) |
|-----|---|----------|---------|---------------|---------------------|
| | | Nos. | | (US\$/UOM) | US\$ |
| 1 | MFT (upto 16,000 HHP)-Equipment Standby | 30 | Day | | |
| 2 | MFT crew (upto 16,000 HHP) - Operating | 10 | Day | | |
| 3 | MFT crew (Upto 16,000 HHP) -Standby | 30 | Day | | |
| 4 | Volume Pumping charges (Upto 16,000 HHP) | 14,000 | BBL | | |
| 5 | MFT (Upto 16,000 HHP) Equipment Mob/De-mob | 2,600 | KM | | |
| 6 | MFT (Upto 16,000 HHP) Crew Mob/De-mob | 2,600 | KM | | |
| 7 | Estimated cost/well (Estimated 02 Stages/Well) | | | | = Sum(R1:R6) |
| 8 | Estimated cost for 06 wells | | | | = 06*R7 |

TABLE 4: CRANE/ FORK LIFTER/FRAC TREE/ISOLATION TOOL

| Sr. | Description | Qty. (Q) | UOM (U) | Unit Rate (P) | Total =(P X Q) |
|-----|---|----------|---------|---------------|----------------------|
| | | Nos. | | (US\$/UOM) | US\$ |
| 1 | Frac Tree/Isolation Tool 15kpsi –Operating | 70 | Day | | |
| 2 | Frac Tree/Isolation Tool 15kpsi-Standby | 10 | Day | | |
| 3 | Frac Tree /Isolation Tool 15kpsi- Crew operating | 70 | Day | | |
| 4 | Frac Tree/Isolation Tool 15kpsi- Crew Standby | 10 | Day | | |
| 5 | Crane (50 ton) with operator- Operating | 10 | Day | | |
| 6 | Crane (50 ton) with operator- Standby | 30 | Day | | |
| 7 | Fork lifter (5 ton) with operator-Operating | 10 | Day | | |
| 8 | Fork lifter (5 ton) with operator-Standby | 30 | Day | | |
| 9 | Frac Tree/Isolation Tool 15kpsi Equipment Mob/De-mob | 2,600 | KM | | |
| 10 | Frac Tree/Isolation Tool 15kpsi Crew Mob/De-mob | 2,600 | KM | | |
| 11 | Crane (50 ton) with operator Mob/De-mob | 2,600 | KM | | |
| 12 | Fork lifter (5 ton) with operator Mob/De-mob | 2,600 | KM | | |
| 13 | Estimated cost/well(US\$) (Estimated 02 stages/well) | | | | = Sum(R1+R12) |
| 14 | Cost for 06 wells | | | | = 06*R13 |

TABLE 5: CANCELLATION COST

| Sr. | Description | Qty. (Q) | UOM (U) | Unit Rate (P) | Total =(P X Q) |
|-----|---|----------|---------|---------------|--------------------|
| | | | | (US\$/UOM) | US\$ |
| 1 | BDI Cancellation Charge | 3 | Nos. | | |
| 2 | CI Cancellation Charge | 3 | Nos. | | |
| 3 | MFT Cancellation Charge | 3 | Nos. | | |
| 4 | Estimated Cancellation Cost (US\$) | | | | Sum (R1:R3) |

TABLE 6: LABORATORY SERVICES

| Sr. | Description | Qty. (Q) | UOM (U) | Unit Rate (P) | Total =(P X Q) |
|-----|--|----------|----------|---------------|----------------|
| | | | | (US\$/UOM) | US\$ |
| 1 | Frac Fluid Compatibility Testing | 400 | Per test | | |
| 2 | Sand/Proppant Grain Size Testing | 400 | Per test | | |
| 3 | Sand/Proppant Crush Resistance Testing | 200 | Per test | | |
| 4 | X-ray Diffraction Mineralogy Analysis | 200 | Per test | | |
| 5 | Scanning Electron Microscopic Analysis | 200 | Per test | | |

| | | | | | |
|----|---|-----|----------|--|---------------------|
| 6 | Triaxle Core Testing | 100 | Per test | | |
| 7 | Particle Size Distribution & Characterization | 100 | Per test | | |
| 8 | Core Flow Retained Permeability Testing | 100 | Per test | | |
| 9 | Capillary Suction time Test | 200 | Per test | | |
| 10 | Proppant Embedment Test | 400 | Per test | | |
| 11 | Any other test | 200 | Per test | | |
| 12 | Estimated cost for 06 wells (US\$) | | | | =Sum(R1:R11) |

| TABLE 7: MATERIALS FOR HYDRAULIC FRAC (CONVENTIONAL) | | | | | |
|---|-------------------------------------|----------|---------|---------------|----------------------|
| Sr. | Material Description | Qty. (Q) | UOM (U) | Unit Rate (P) | Total =(P X Q) |
| | | | | US\$/UOM | (US\$) |
| 1 | Acid Fluid, upto 350 °F | 140 | BBL | | |
| 2 | Frac Fluid, upto 350 °F | 10,000 | BBL | | |
| 3 | Slick Water, upto 400 °F | 2,000 | BBL | | |
| 4 | KCL Brine | 2,000 | BBL | | |
| 5 | Proppant | 400,000 | Lbs. | | |
| 6 | Estimated 02 Stages | | | | = Sum (R1:R5) |
| 7 | Acid Fluid, above 350 °F | 70 | BBL | | |
| 8 | Frac Fluid, above 350 °F | 5,000 | BBL | | |
| 9 | Slick Water, upto 400 °F | 1,000 | BBL | | |
| 10 | KCL Brine | 1,000 | BBL | | |
| 11 | Proppant | 200,000 | Lbs. | | |
| 12 | Estimated cost for 01 Stage | | | | =Sum (R7:R11) |
| 13 | Estimated cost for 03 Stages | | | | =R6+R12 |

| TABLE 8: MATERIALS FOR HYDRAULIC FRAC (PULSATED/CHANNELED/CONDUCTIVE) | | | | | |
|--|--|----------|---------|---------------|-----------------------|
| Sr. | Material Description | Qty. (Q) | UOM (U) | Unit Rate (P) | Total =(P X Q) |
| | | | | US\$/UOM | (US\$) |
| 1 | Acid Fluid, upto 350 °F | 140 | BBL | | |
| 2 | Frac Fluid, upto 350 °F | 10,000 | BBL | | |
| 3 | Slick Water, upto 400 °F | 2,000 | BBL | | |
| 4 | KCL Brine | 2,000 | BBL | | |
| 5 | Proppant | 200,000 | Lbs. | | |
| 6 | Blend for Channeled Pulsated/ Channeled/Conductive fracturing | 200,000 | Lbs. | | |
| 7 | Estimated 02 Stages | | | | = Sum (R1:R6) |
| 8 | Acid Fluid, above 350 °F | 70 | BBL | | |
| 9 | Frac Fluid, above 350 °F | 5,000 | BBL | | |
| 10 | Slick Water, upto 400 °F | 1,000 | BBL | | |
| 11 | KCL Brine | 1,000 | BBL | | |
| 12 | Proppant | 100,000 | Lbs. | | |
| 13 | Blend for Channeled Pulsated/ Channeled/Conductive fracturing | 100,000 | Lbs. | | |
| 14 | Estimated cost for 01 Stage | | | | = Sum (R8:R13) |
| 15 | Estimated Cost for 3 Stages | | | | =R7+R14 |

| TABLE 9: MATERIALS FOR ACID FRAC | | | | | |
|---|--|----------|---------|---------------|----------------|
| Sr. | Material Description | Qty. (Q) | UOM (U) | Unit Rate (P) | Total =(P X Q) |
| | | | | US\$/UOM | (US\$) |
| 1 | Acid Fluid, upto 350 °F | 3,600 | BBL | | |
| 2 | Estimated Cost for 2 Wells(02 Stages/Well) | | | | =2*R1 |
| 3 | Acid Fluid, Above 350 °F | 3,600 | BBL | | |
| 4 | Estimated Cost for one Well(02 Stages/Well) | | | | =1*R3 |
| 5 | Estimated Cost for 03 wells | | | | =R2+R4 |

| TOTAL BIDDING VALUE OF PRICING TABLES | | | |
|---------------------------------------|---|---|-----------------|
| Sr. | Table # | Service Description | Table Totalizer |
| 1 | Table-1 | Design Optimization/Frac Feasibility Study | |
| 2 | Table-2 | Break Down Injection(BDI)/Calibration Injection (CI) | |
| 3 | Table-3 | Main Frac Treatment(MFT) | |
| 4 | Table-4 | Crane/ Fork Lifter/Frac Tree/Tree Saver | |
| 5 | Table-5 | Cancellation Charges | |
| 6 | Table-6 | Laboratory Services | |
| 7 | Table-7 | Materials For Hydraulic Frac (Conventional) | |
| 8 | Table-8 | Materials For Hydraulic Frac (Pulsated/channeled /conductive) | |
| 9 | Table-9 | Materials For Acid Frac | |
| 10 | Grand Total Estimated Cost for Six Wells (US\$) | | Sum (R1:R9) |

Note:

- The bidder quoting lowest in the above table as “Grand Total Estimated Cost for Six Wells” shall be the financially lowest. Contract will be awarded to financially lowest bidder.
- Any additional items not covered in the table shall be offered from the published price book with _____% discount.
- Number of wells, days, millage, recipes. Type of frac jobs and quantities mentioned are for evaluation purposes only. Payment will be made as per actual.
- Number of stages/well, wells for Hydraulic (conventional and pulsated/channeled/conductive frac) and acid frac are tentative therefore fracture design i.e acid, hydraulic (conventional/channeled), number of wells/stages per well in each case may increase or decrease as per actual candidate wells.
- The unit rates mentioned in “format for rates” will prevail, in case different rate against same item is quoted in “Financial evaluation”.