

# OIL & GAS DEVELOPMENT COMPANY LIMITED

## PROCUREMENT DEPARTMENT, ISLAMABAD

### FOREIGN SECTION E

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

ANNEXURE 'A'

PETROLEUM TESTING AND WATER ANALYSIS EQUIPMENT  
 PROC-FE/CB/P&P/LAB-3076/2017

Enquiry No

on Criteria

GROUP WISE

#### SCHEDULE OF REQUIREMENT

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
VISCOSITY BATH ALONG WITH VISCOMETERS, SPECIFICATIONS AS PER ATTACHMENT	Number	1					
HYDROMETER (0.65-0.70),SPECIFICATION AS PER ATTACHMENT	Number	12					
HYDROMETER (0.750-0.800),SPECIFICATION AS PER ATTACHMENT	Number	12					
HYDROMETER (0.800-0.850), SPECIFICATION AS PER ATTACHMENT	Number	24					
HYDROMETER (0.850-0.900),SPECIFICATION AS PER ATTACHMENT	Number	24					
HYDROMETER (0.900-0.950),SPECIFICATION AS PER ATTACHMENT	Number	12					
HYDROMETER (0.950-1.000),SPECIFICATION AS PER ATTACHMENT	Number	12					
HYDROMETER (1.000-1.100),SPECIFICATION AS PER ATTACHMENT	Number	24					
HYDROMETER (1.100-1.200),SPECIFICATION AS PER ATTACHMENT	Number	24					
HYDROMETER (1.200-1.300),SPECIFICATION AS PER ATTACHMENT	Number	12					
HYDROMETER (0.70-0.75),SPECIFICATION AS PER ATTACHMENT	Number	12					
REID VAPOUR PRESSURE APPARTUS FOR LPG, OTHER SPECIFICATION AS PER ATTACHMENT	Number	4					
REID VAPOUR PRESSURE APPARTUS FOR LPG, OTHER SPECIFICATION AS PER ATTACHMENT	Number	4					
REID VAPOUR PRESSURE APPARTUS FOR LPG, OTHER SPECIFICATION AS PER ATTACHMENT	Number	4					
CENTRIFUGE MACHINE, SPECIFICATION AS PER ATTACHMENT	Number	1					
CENTRIFUGE MACHINE, SPECIFICATION AS PER ATTACHMENT	Number	1					
CENTRIFUGE MACHINE, SPECIFICATION AS PER ATTACHMENT	Number	1					
WALT IN CRUDE ANALYZER,SPECIFICATION AS PER ATTACHMENT	Number	2					
WALT IN CRUDE ANALYZER,SPECIFICATION AS PER ATTACHMENT	Number	2					
REID VAPOUR PRESSURE BATH SPECIFICATION AS PER ATTACHMENT	Number	1					
REID VAPOUR PRESSURE BATH SPECIFICATION AS PER ATTACHMENT	Number	1					
COLORIMETER,OTHER SPECIFICATION AS PER ATTACHMENT	Number	1					
COLORIMETER,OTHER SPECIFICATION AS PER ATTACHMENT	Number	1					
MULTIPARAMETER BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	1					
MULTIPARAMETER BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	1					
MULTIPARAMETER BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	1					
MULTIPARAMETER BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	1					
MULTIPARAMETER BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	1					

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

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

**ANNEXURE 'A'**

Material PETROLEUM TESTING AND WATER ANALYSIS EQUIPMENT  
Tender Enquiry No PROC-FE/CB/P&P/LAB-3076/2017  
Due Date  
Evaluation Criteria GROUP WISE  
Group B

28	TURBIDITY METER BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	1
29	TURBIDITY METER BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	1
30	TURBIDITY METER BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	1
31	SPECTROPHOTOMETER, BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	1
32	SPECTROPHOTOMETER, BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	1
33	SPECTROPHOTOMETER, BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	1
34	PH METER BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	2
35	PH METER BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	2
36	PH METER BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	2
37	PH METER BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	2
38	PH METER BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	1
39	CONDUCTIVITY METER, BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	2
40	CONDUCTIVITY METER, BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	2
41	CONDUCTIVITY METER, BENCHTOP, SPECIFICATION AS PER ATTACHMENT	Number	1
42	COD REACTOR, OTHER SPECIFICATION AS PER ATTACHMENT	Number	1
43	BOD TRACK-II APPARATUS ALONG WITH INCUBATOR, OTHER SPECIFICATION AS PER ATTACHMENT	Number	1

**Note:-**

1. **Bid bond:** Pursuant to tender clause # 2.2, 11.4, 13 & 35.3.2, bid bond amounting Pak Rupees: 500,000/- (Pak Rupees Five Hundred Thousand only) or equivalent in US\$ should be submitted with the technical bid.
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 website in the master tender document and attached technical Terms & Conditions.

**Specifications of Laboratory Equipment**

**INDENT NO P&P/Lab-13/17**

**Attachment**

No.	Description	Specifications
1	<b>Centrifuge Machine</b> Confirms: ASTM D91,D96,D893,D1290,D1796,D1966,D2273, D2709 & D4007	<ul style="list-style-type: none"> <li>➤ Capacity: 6 samples</li> <li>➤ Centrifugal force (RCF): 2214 gm (maximum)</li> <li>➤ Rotational speed: 3000 rev/min (maximum)</li> <li>➤ Temperature range: ambient 30 to 80 °C (switchable °F)</li> <li>➤ Timer range: 1 to 60 minutes in 1 minute steps or continuous operation</li> <li>➤ Control: Microprocessor with 99 memory capacity</li> <li>➤ Power requirements: compatible with Pakistan standards</li> <li>➤ Required with Rotor, bucket, bucket adaptor &amp; bottom cushion.</li> </ul> <p><b>Optional Accessories:</b></p> <ol style="list-style-type: none"> <li>1. Tubes Cone Shaped (24 No.) 8" inch*100 ml</li> <li>2. Stoppers (24 No.)</li> </ol>
2	<b>Salt in Crude Analyzer</b> Confirms: ASTM D-3230 salts mixed solution  <i>IP 265</i>	<ul style="list-style-type: none"> <li>➤ Parameters: Salt contents, conductance, temperature and Salt concentration of crude oil according to ASTM D-3230, IP 265 (Automatic calculation of Salt concentration).</li> <li>➤ Salt concentration range: 0-151lb/1000 bbl (ptb)</li> <li>➤ Temp Range:-20°C to 150°C (Res 0.1°C)</li> <li>➤ High resolution digital display</li> <li>➤ Pre calibrated for immediate use / Or use calibration mode for verifications</li> <li>➤ Measurements displayed to printer or PC or to LMIS network.</li> <li>➤ Power requirements: compatible with Pakistan standards</li> <li>➤ Required with Salt check verification tool, Stands (pair for beaker sensor assembly), Temperature Probe and cable and beakers.</li> </ul>
3	<b>R.V.P Bath</b>  Confirms: ASTM D-323 and D-1267	<ul style="list-style-type: none"> <li>➤ Test Temperature range: Ambient +5 to 90 °C</li> <li>➤ Temperature uniformity: ± 0.1 °C @ 37.8 °C</li> <li>➤ Control: Digital temperature control</li> </ul>

	<ul style="list-style-type: none"> <li>➤ Capacity: up to 4 cylinder assemblies (min)</li> <li>➤ Required With: Pressure cylinder mounting bracket, Vessel support bracket, user manual and certificate of calibration/performance.</li> </ul>																				
<p><b>4</b></p> <p><b>Hydrometers</b></p> <p>For specific gravity as per ASTM Standards</p>	<p>Range:</p> <table border="0"> <tr><td>0.650-0.700</td><td>12</td></tr> <tr><td>0.700-0.750</td><td>12</td></tr> <tr><td>0.750-0.800</td><td>12</td></tr> <tr><td>0.800-0.850</td><td>24</td></tr> <tr><td>0.850-0.900</td><td>24</td></tr> <tr><td>0.900-0.950</td><td>12</td></tr> <tr><td>0.950-0.100</td><td>12</td></tr> <tr><td>1.000-1.100</td><td>24</td></tr> <tr><td>1.100-1.200</td><td>24</td></tr> <tr><td>1.200-1.300</td><td>12</td></tr> </table> <p><b>Optional Accessories:</b></p> <ol style="list-style-type: none"> <li>1. Gasket</li> </ol>	0.650-0.700	12	0.700-0.750	12	0.750-0.800	12	0.800-0.850	24	0.850-0.900	24	0.900-0.950	12	0.950-0.100	12	1.000-1.100	24	1.100-1.200	24	1.200-1.300	12
0.650-0.700	12																				
0.700-0.750	12																				
0.750-0.800	12																				
0.800-0.850	24																				
0.850-0.900	24																				
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0.950-0.100	12																				
1.000-1.100	24																				
1.100-1.200	24																				
1.200-1.300	12																				
<p><b>5</b></p> <p><b>Viscometer Bath</b> (Bench top) ASTM D-445,D-446M, D-2170,D-2270 &amp; Viscometers Six (06) reverse Flow &amp; Six (06) Routine Flow</p>	<ul style="list-style-type: none"> <li>➤ Capacity: 50 liter</li> <li>➤ Accommodate up to 8 standard viscometers with universal viscometer holder</li> <li>➤ Temperature range: Ambient to 150 C</li> <li>➤ Stability: +- 0.01°C</li> <li>➤ Tube Capacity: up to 6</li> <li>➤ Bath Oil: 40-80 °C</li> <li>➤ Digital Temp control setting with display</li> <li>➤ Required with Universal Viscometer Holder, Kinematic viscometer 40 °C &amp; 100 °C, sealing caps (6 No.) &amp; Bench Viscometer Stand, Bath Oil: 40-80 °C Bath Oil: 80-120 °C</li> <li>➤ Power requirements: compatible with Pakistan standards</li> </ul>																				

<p><b>6</b></p> <p><b>Reid Vapour Pressure Cylinder Assembly for LPG</b></p> <p>ASTM-D1267</p>	<ul style="list-style-type: none"> <li>➤ Test Pressure Range: up to 3500 kPa</li> <li>➤ Hydrostatic pressure Tested: up to 7000 kPa</li> <li>➤ Required with: Ullage Chamber (20%) with valve, pressure gauge – 1750 kPa), gauge</li> <li>➤ adaptor, user manual and certificate of calibration</li> </ul> <p><b>Additional accessories required with main equipment:</b></p> <ol style="list-style-type: none"> <li>1. 01 No. Pressure gauge (0 – 3500 kPa)</li> <li>2. 01 No. Corrosion resistant sampling connector (3 ft length)</li> </ol>
<p><b>Group B</b></p>	
<p><b>7</b></p> <p><b>Spectrophotometer</b></p> <p><i>( Bench top)</i></p>	<ul style="list-style-type: none"> <li>➤ Parameters: Transmittance (%), Absorbance and Concentration with RFID(wavelength, Time)</li> <li>➤ Wavelength Range: 320 – 1100 nm Accuracy : ±1.5 nm Resolution:1 nm</li> <li>➤ Wavelength calibration: Automatic based on method selection</li> <li>➤ Wavelength selection: <ul style="list-style-type: none"> <li>✓ Automatic: based on method selection</li> <li>✓ Manual: In all modes except stored programmes</li> </ul> </li> <li>➤ Data Storage &gt;2000 data points (date, time, results, sample ID, user ID)</li> <li>➤ USB interface for printer or PC with software (if any)</li> <li>➤ Meter Enclosure rating :IP 30</li> <li>➤ Operating conditions: 10 – 40 °C</li> <li>➤ Required with: Power cable , data cable and software CD (if any) manuals and certificate of calibration</li> </ul> <p><b>Additional Accessories required with main equipment:</b></p> <ol style="list-style-type: none"> <li>1. 06pairs of matched cell.</li> </ol>
<p><b>8</b></p> <p><b>pH Meter</b></p> <p>(Bench top)</p>	<ul style="list-style-type: none"> <li>➤ Parameter: pH, mV, Temperature, Redox with GLP feature</li> <li>➤ Electrode: Gel-filled pH and temperature combination electrode</li> <li>➤ Measurement ranges: <ul style="list-style-type: none"> <li>pH: 0 to 14</li> </ul> </li> </ul>

		<p>mV: -1999 to 1999 mV Temperature: 0 to 100°C</p> <p>➤ Resolution: pH: 0.001 mV: 0.1 mV &amp; Temperature: 0 to 100 °C</p> <p>➤ Easy to perform one-point or multi-point calibration with autom temp. Compensation &amp; automatic buffer recognition according GLP/ISO.</p> <p>➤ Samples internal data storage more than 300 results with date and t user ID, sample ID.</p> <p>➤ USB or RS 232C for printer or PC with software.(if any)</p> <p>➤ Required with: Gel-filled pH and temperature combination electr electrode stand / bench top kit, power cable, data cable and softw CD (if any), user manual and certificate of calibration</p> <p><b>Additional Accessories required with main equipment:</b></p> <ol style="list-style-type: none"> <li>02 extra Gel filled PH and temperature combination electrodes.</li> <li>Electrodes stand/bench top kit.</li> <li>Buffer solutions of PH 4,7 &amp; 10 (02 bottles of 500 ml each)</li> </ol> <p>➤ Parameters: Conductivity, TDS, Salinity, Resistivity, Temperature GLP feature</p> <p>➤ Electrode: single combination electrode</p> <p>➤ Measurement Ranges (with selectable resolution): TDS: 9999, Conductivity: 0.01 µS/cm to 1000 mS/cm Temperature: 0 to 100</p> <p>➤ Resolution: 0.5 % of measurement range</p> <p>➤ Easy to perform one-point or multi-point calibration according GLP/ISO.</p> <p>➤ Samples internal data storage &gt;300 results with date and time, use sample ID.</p> <p>➤ Stability indicator for rapid recognition of stable measured values.</p> <p>➤ USB or RS 232C for printer or PC with software.(if any)</p> <p>➤ Required with: Power cable , data cable and software CD (if any)</p>
9	<p><b>Conductivity / TDS Meter</b> (Bench top)</p>	



		<p>manuals and certificate of calibration</p> <p><b>Additional Accessories required with main equipment:</b></p> <ol style="list-style-type: none"> <li>1. 02 No. extra electrodes.</li> <li>2. Electrodes stand/bench top kit.</li> <li>3. 02 No. bottle of 500ml each conductivity standard (01 low and high range)</li> <li>4. 02 No. bottle of 500ml each TDS standard (01 low and 01 range)</li> </ol>
10	<p><b>Turbidity Meter</b> (Bench top)</p>	<ul style="list-style-type: none"> <li>➤ Measurement modes: FNU, NTU, EBC, ABS, %T, ASC</li> <li>➤ Measuring Range: 0 – 10,000 NTU Accuracy: ±2%</li> <li>➤ Measuring Resolution: 0.001 NTU</li> <li>➤ Storage Conditions -40 °C to -60 °C</li> <li>➤ Response/stabilization time: Immediate OFF; 14 sec when ON</li> <li>➤ Samples internal data storage &gt;2000 results with date and time, use sample ID.</li> <li>➤ USB interface for printer or PC with software.(if any)</li> <li>➤ Required with: Power cable , data cable and software CD (if any) manuals and certificate of calibration</li> </ul> <p><b>Additional Accessories required with main equipment:</b></p> <ol style="list-style-type: none"> <li>1. 06pairs of matched cells</li> <li>2. 02 No. bottle of 500ml each turbidity standard calibration</li> </ol>
11	<p><b>BOD Trak II Apparatus along with incubator</b></p>	<p><b>BOD Trak II Specs</b></p> <ul style="list-style-type: none"> <li>➤ Range: 0 to 700 mg/L O<sub>2</sub> (Selectable 0-35, 0-70, 0-350 0-700 mg/L (</li> <li>➤ Six 492-ml Bottles</li> <li>➤ Drift &lt; 3mg/L BOD in 5 days</li> <li>➤ Resolution 1mg/L mg/L O<sub>2</sub></li> <li>➤ USB interface for printer or PC with software.(if any)</li> <li>➤ Required with: Power cable , data cable and software CD (if any) manuals and certificate of calibration</li> <li>➤ Power requirements: compatible with Pakistan standards</li> </ul>

		<p style="text-align: center;"><b><u>Incubator Specs</u></b></p> <ul style="list-style-type: none"> <li>➤ Temp Range: 5-45 °C</li> <li>➤ Accuracy: ±0.5 °C @ 20°C</li> <li>➤ Compatible with offered BOD Trak II.</li> <li>➤ Required with: Power cable , data cable (if any) user manuals certificate of calibration</li> <li>➤ Power requirements: compatible with Pakistan standard.</li> </ul> <p><b>Additional Accessories required with main equipment:</b></p> <ol style="list-style-type: none"> <li>1. BOD standard solution 300mg/L</li> </ol>
12	<b>COD Reactor</b>	<ul style="list-style-type: none"> <li>➤ Programmable Temperature range: 37 to 165 °C(99 to 329°F)</li> <li>➤ Operating Temperature : 10 to 45 °C(50 to 113°F)</li> <li>➤ Heating Rate 20 to 150°C in 10 minutes</li> <li>➤ Programmable Time range: 0 to 480 minutes</li> <li>➤ Heating Rate 20 to 150°C in 10 minutes</li> <li>➤ Temperature Stability : ±2 °C</li> <li>➤ Stored Programs COD: 150°C 120 minutes TOC: 105°C 120 min Fixed: 100,105 30,60 Fixed: 150,165 °C 120 minutes</li> <li>➤ Required with: Power cable , data cable and software CD (if any) manuals and certificate of calibration</li> <li>➤ Power requirements: compatible with Pakistan standards</li> </ul> <p><b>Additional Accessories required with main equipment:</b></p> <ol style="list-style-type: none"> <li>1. 50. Vials of COD digestion reagent low range</li> <li>2. 50. Vials of COD digestion reagent high range</li> </ol>
13	<b>Multi parameter</b> (Bench top)	<ul style="list-style-type: none"> <li>➤ Parameters: Temp, PH, Conductivity, TDS, Salinity, Conduct Dissolved Oxygen. Resistivity, Temperature</li> <li>➤ Internal Data Storage: 330 results</li> <li>➤ Measurement ranges:</li> </ul> <p style="margin-left: 20px;">pH: 0 to 0.002</p> <p style="margin-left: 20px;">TDS:0-500 g/L</p> <p style="margin-left: 20px;">Conductivity: 0.001 µS/cm to 1000 mS/cm</p> <p style="margin-left: 20px;">DO:0 to 60 mg/LO<sub>2</sub></p>



		<p>EC:0.01 S/cm-1 m S/cm</p> <ul style="list-style-type: none"> <li>➤ Rs 232 (two way) serial to USB adaptor</li> <li>➤ Required with: Power cable , data cable and software CD (if any) manuals and certificate of calibration</li> <li>➤ Power requirements: compatible with Pakistan standards</li> </ul> <p><b>Additional Accessories required with main equipment:</b></p> <ol style="list-style-type: none"> <li>1. An extra Electrode Compatible with HACH 378 Multiparameter</li> </ol>
14	<p><b>Colorimeter</b> (Portable)</p>	<ul style="list-style-type: none"> <li>➤ Parameters: Concentration, Absorbance, Transmittance,</li> <li>➤ wavelength: 420 nm,520nm,560nm,610nm</li> <li>➤ Wavelength Accuracy: ±1 nm</li> <li>➤ Required with:, Power cable , data cable and software CD (if any) manuals and certificate of calibration</li> <li>➤ Power requirements: compatible with Pakistan standards</li> </ul> <p><b>Additional Accessories required with main equipment:</b></p> <ol style="list-style-type: none"> <li>1. 06 pairs of sample cells</li> </ol>

**Instruction to Bidder/Supplier:**

- Bidder/manufacturer shall have a local set up for at least three (03) years experience/ track record for successfully selling and providing back-up services for lab equipments in Pakistan will be eligible for bidding. Local agent will have to submit a declaration with bid duly endorsed by OEM regarding the provision of after sale services against this particular tender enquiry.
- Previous track record of the bidder / manufacturer and performance of equipment(s) will also be considered for technical evaluation.
- Bidder(s) is required to mention all accessories which are part of main equipment and will required for equipment's normal operation. Accessories required for commissioning / normal operation as mentioned with each equipment is required to quote separately and include in financial evaluation. Additional required accessories and spares as mentioned are also required to be quoted separately which will not be included in financial evaluation and quoted separately but selection for order any accessories/spares will be on OGDCL decision. If any bidder failed to quote such accessories/spares, the highest price(s) quoted by any bidder will be consider for financial evaluation on his behalf. Optional accessories can also be quoted separately and not consider for financial evaluation.
- Warranty period for each item must be clearly mentioned in bid and equipment(s) will be supplied with original Certificate of Calibration / Performance and certificate of Warranty Guarantee issued by OEM. Warranty period of the equipment should be

- For item at serial # 7, if any bidder quotes model/make other than HACH he will have to confirm its equivalency with HACH direct reading spectrophotometers regarding the utilization of HACH reagents and chemicals. If equipments are not equivalent, the bidder will have to quote analytical reagents used with quoted model for all NEQCS parameters of industrial effluents.
- Equipment should be supplied with complete literature and operational manuals. Any available software for operation, results recording and manipulation should also be provided and will give advantage.
- Installation and commissioning of the equipment (if required) is to be provided by the supplier free of cost.
- Supplier is bound to provide back-up services regarding repair & maintenance, trouble shooting and supply of all accessories and spares for next five years declaration should submit with the bid.
- If OGDCL require to witness manufacturing facility (at OGDCL own cost), the bidder will responsible to facilitate OGDCL officials regarding visa formalities for technical training, visit of manufacturing and R&D facilities (at least 05 days).

**Necessary Attachments:**

1. Complete literature of the quoted equipment in original printed by manufacturer.
2. Valid ISO 9001-2008 certificate for manufacturing of quoted product.
3. Original authority letter issued by the manufacturer to bidder and to local agent (if any) not only for quoting their product. And also declaration by the manufacturer in favor of local agent for back-up services regarding repair & maintenance, trouble shooting and supply of optional accessories or spare for quoted product for at least 03 years.
4. Complete profile of the local agent of the bidder/manufacturer showing their client list in Pakistan with their Contact numbers & contacting person, services and years of supplying offered equipment(attach the copy of PO) and Bidder/manufacturer has to furnish two letter of recommendation/performance comments of the client/user from any reputed petrochemical company one preferably from Pakistan while the Bidder who supplied the same equipment to OGDCL through bidding procedure and subsequently having satisfactory performance is not required to submit letter of recommendation while attach the copy of PO with model and quantity of equipment supplied.
5. Certificate of Calibration/performance & certificate of Warrantee Guarantee must be submitted for each equipment in both groups at the time of delivery.