

No	Item	Unit	QTY	Unit Price	Sub Total Price
15	Electrical and Mechanical Works This encompasses, but is not limited to: <ul style="list-style-type: none"> - Provision and installation all associated pipes, Flanges, fittings, isolation valves, PRVs and drain valves - Provision and installation appropriate metering skid canopy - Pipe cutting in situ, supplying and welding the opposite upstream and downstream flanges, and the installation of the whole metering skid. - Provision and wiring up all electrical and signal cables, PLC, cable tray, electrical panels, earthing system, and junction boxes - Supply, laying, and wiring up all power and signal cables in trench with depth 120 cm and width 30 cm, from the metering skid to control room (400 m maximum). The work includes digging of the trench (manual and automated according to the site), laying the cables and warning tapes then backfill the trench with soil. 	Totally	Totally		
16	Training Five days training "excluding travel days" should be given for custody transfer dep. personnel. Training shall be conducted in Country of Origin. The training program shall encompass the aspects below: <ul style="list-style-type: none"> - System operation - General and preventive maintenance. - General system familiarization including design. - Measuring techniques. - Troubleshooting. 	Person	5		
17	Factory Acceptance Test (FAT) <ul style="list-style-type: none"> - The (FAT) shall be conducted following the approved FAT Plan. - The FAT Plan shall be prepared by the vendor and submitted to the first party (MDOC) for review and approval. - The full skid system integration test for the FMS package (Flow Computers, UFM, supervisory computers, PLC, field instrumentations) shall be done at factory before shipping. - Four personnel from Midland Oil Company shall witness the Factory Acceptance Test (FAT) in the presence of a third-party inspector for a period of five days, excluding travel days. 	Person	4		
18	Site Acceptance Test (SAT) and Commissioning This test shall take place at site, SAT tests plan shall be submitted to MDOC to review and approval, any punch list items from FAT shall be retested during SAT. An accredited third-party inspector shall be present to witness and endorse the SAT Test report. A ten-day commissioning period is also required for the entire metering skid.	Totally	Totally		

Total Price	
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Notes:

- 1) Country of origin for the instruments and equipment listed from 1-10 in the table of quantities, as mentioned in front of each material: USA, England, Germany, Switzerland, Italy
- 2) Country of origin for item 11 in the table of quantities: Romania
- 3) Country of origin for item 12 in the table of quantities: China
- 4) A Country of origin certificate is required for items 1-11 in the table of quantities, as stated in front of each item.
- 5) All Country of origin Certificates, shall be ratified by Trade Bureau and Iraqi embassy therein.
- 6) All Calibration Certificates shall undergo review and approval by an accredited third-party inspector, and must be valid.
- 7) The execution period of purchase order is (365) days, which encompass delivery installation, site commissioning, SAT, and training as well.
- 8) (365) days of warranty once initial acceptance certificate issued
- 9) Environmental Data of items
 - Ambient Temperature [°C]: ≤55 (Under Sunshade) ≤80 (Direct Sun Light)
 - Barometric Pressure [Kg/cm²(g)]: 1.01325
 - Relative Humidity (%): 5 ... 95
- 10) The gas flow metering system shall consist of two streams: one duty stream and one standby stream, each with 100% flow capacity. Therefore, one stream shall function as duty stream, while the other stream shall serve as a redundant at all levels, including:
 - Redundant PLCs
 - Redundant PCs, Supervisory Software and flow computers
 - Redundant PCVs
 - Redundant Density Meter
 - Redundant Power Supply
- 11) Gas Composition

The below gas specifications is based on Iraqi Marketing Specifications for export dry gas:

Test	%
C1 Vol% (min)	75.0
C2 Vol% (max)	20.0
C3 Vol% (max)	0.50
Butane% (max)	0.25
Pentane and heavier Vol% (max)	0.25
Nitrogen (N ₂) Vol% (max)	1.20
Carbon Dioxide (CO ₂) Vol% (max)	2.50
H ₂ S (ppmv) (max)	4.00
Mercaptan (RSH) (mg/m ³) (max)	15.00
Total Sulfur (mg/m ³) (max)	40.00
Water Dew Point [°C] @ 40 Bar (max)	-40
Hydrocarbon Dew Point [°C] @ 40 Bar (max)	-36
Gross Heating Value (BTU/SCF) (max)	1150
Mercury (ng/m ³) (max)	10.00
Oxygen Vol% (max)	0.10

Third: Instruments and Equipment

No	Item	Unit	QTY	Unit Price	Sub Total Price
1	Dry Gas Flow Meter i. General Service Dry gas measurement, custody transfer applications Meter Type, Orientation Inline Ultrasonic, Horizontal Direction of Measurement Uni-Directional Principle of Measurement Ultrasonic, Transit Time Accuracy $\pm 0.3\%$ of reading (for master meter) $\pm 0.6\%$ of reading (for duty meter) Overall Uncertainty $\pm 0.5\%$ (for master meter) $\pm 1\%$ (for duty meter) No. of Paths 4 bath at least Line Size & Schedule 6 inch, Sch.80 Meter Size [inch] 6 Process Connection RF, Cl.300 as per ASME B16.5 Country of Origin USA, England, Germany, Switzerland, Italy ii. Materials Measuring Tube, Meter Body, Flanges Carbon Steel ASTM A350 LF2 or Carbon Steel ASTM A352 Gr LCC Titanium Transducers iii. Process Data Process Fluid Dry gas (refer to Note 11, gas composition) Operating Flow Rate [MMSCF/D]: Min 6 Nor 13 Max 20 Operating Temperature [°C] 0 - 40 (Winter) 5 - 50 (Summer) Operating Pressure [Kg/cm ² (g)] Min 20 Nor 30 Max 38 iv. Flow Transmitter Display LCD Measured and displayed values Line#1: Volume Flow Rate, Line#2: Totalising Volume Language of Display English Mounting Version Compact Output Signal 4-20mA HART + Impuls Supply Voltage 24 DC V Registration Unit MMSCF Material Body Stainless Steel 304 Carbon Steel ASTM A350 Gr.LF2 Ingress Protection, Certification IP 65 or Higher, Ex "d" Calibration Certificate Required	Piece	2		
2	On-Line Gas Chromatograph Analyzer Carrier gas Helium Gas analysis components Refer to Note 11 below Analysis cycle time < 3 min Accuracy $\pm 0.25\%$ of reading for Reading Supply Voltage 24 DC V, 50 Hz Ingress Protection, Certification IP65, Ex "d" Calibration Certificate Required Country of Origin USA, England, Germany, Switzerland, Italy	Piece	1		