Oil India Limited
(A Govt. of India Enterprise)
P.O. Duliajan – 786602, Assam

Telephone No. (91-374) 2808793
Fax No: (91-374) 2800533
Email: materials@oilindia.in; erp_mm@oilindia.in

Tender No. : **SDG0301P16/07 OF 19.02.2016**

Bidding Type : **SINGLE STAGE TWO BID SYSTEM**

Tender Document sell date: from 19.03.2016 to 11.05.2016 at 15.30 hrs (IST)

Bid Closing on : **18.05.2016 at 11:00 hrs (IST)**
Bid Opening on : **18.05.2016at 14:00 hrs (IST)**

Tender Fee : **INR 4,500.00 OR USD 100.00**
Bid Security Amount : **INR 140,000.00 OR USD 2,059.00**
(Or equivalent amount in any currency)

Performance Guarantee : Applicable

OIL INDIA LIMITED invites Global Tenders for items detailed below:

Item No.	MATERIAL DESCRIPTION	QTY.	UOM
10	**Supply of Gas Chromatograph as per the following:** a) Detailed specification – Annexure - A b) Bid Rejection Criteria (BRC) and Bid Evaluation Criteria – Annexure-B c) Commercial Check list - Annexure - C	01	No.

GENERAL NOTES FOR E- TENDER:

1.0 The tender will be governed by "General Terms & Conditions" for e-Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders) including Amendments & Addendum to "General Terms & Conditions" for e-Procurement.

2.0 Commercial Check list is furnished vide Annexure – C. Please ensure thatthe check list is properly filled up and uploaded along with Technical bid.

3.0 Please note that all tender forms and supporting documents are to be submitted through OIL's e-Procurement site only except following documents which are to be submitted manually in sealed envelope super scribed with tender no. and due date to The Head Materials, Materials Department, Oil India Limited, Duliajan- 786602, Assam on or before the Bid Closing Date and Time mentioned in the Tender.

a) **Original Bid Security along with duplicate copies of Bid Security**

b) **Details Catalogue and any other document which have been specified to be submitted in original.**

4.0 The tender is invited under SINGLE STAGE-TWO BID SYSTEM. The bidder has to submit both the "TECHNO-COMMERCIAL UNPRICED BID" and "PRICED BID" through electronic form in the OIL's e-Tender portal within the Bid Closing Date and Time stipulated in the e-Tender. The "Techno-commercial Unpriced Bid" shall contain all technical and commercial details except the prices which shall be kept blank. Details of prices as per Bid format / Commercial bid to be uploaded as attachment in the Attachment Tab "Notes and Attachments".

Any offer not complying with above submission procedure will be rejected as per Bid Rejection Criteria mentioned in the tender.

5.0 In Technical Bid opening, only Technical Rfx will be opened. Therefore, the bidder should ensure that "TECHNO-COMMERCIAL UNPRICED BID should contain details as mentioned in the technical specifications as well as BEC/ BRC and upload the same in the Technical RFx Response-> User - > Technical Bid. No price should be given in above Technical Rfx otherwise the offer will be rejected. Please go through the help document in details before uploading the document and ensure uploading of technical bid in the Technical RFx Response-> User - > Technical Bid only. The "PRICE BID" must contain the price schedule and the bidder's commercial terms and conditions. Details of prices as per Bid format / Commercial bid can be uploaded as Attachment under the attachment option under "Notes & Attachments"

6.0 PRICED BIDS OF ONLY THOSE BIDDERS WILL BE OPENED WHOSE OFFERS ARE FOUND TO BE TECHNO-COMMERCIALLY ACCEPTABLE.

7.0 All the Bids must be Digitally Signed using "Class 3" digital certificate *(e-commerce application)* only as per Indian IT Act obtained from the licensed Certifying Authorities operating under the Root Certifying Authority of India (RCAI), Controller of Certifying Authorities (CCA) of India. The bid signed using other than "Class 3" digital certificate, will be liable for rejection.

8.0 Bidders are requested to examine all instructions, forms, terms and specifications in the bid. Failure to furnish all information required as per the bid or submission of offers not substantially responsive to the bid in every respect will be at the bidders risk and may result in the rejection of its offer without seeking any clarifications.

9.0 The Integrity Pact is applicable against this tender. OIL shall be entering into an Integrity Pact with the bidders as per format enclosed vide Annexure XII of the tender document. This Integrity Pact proforma has been duly signed digitally by OIL's competent signatory. The proforma has to be returned by the bidder (along with the technical bid) duly signed (digitally) by the same signatory who signed the bid, i.e., who is duly authorized to sign the bid. Uploading the Integrity Pact with digital signature will be construed that all pages of the Integrity Pact has been signed by the bidder's authorized signatory who sign the Bid. **If any bidder refuses to sign Integrity Pact or declines to submit Integrity Pact with the offer, their bid shall be rejected straightway.**

OIL's Independent External Monitors at present are as under:

1. SHRI RAJIV MATHUR, IPS(Retd.),
e-Mail ID : rajivmathur23@gmail.com

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ANNEXURE- A

SCOPE OF SUPPLY

The Scope of supply would cover supply,services, installation,testing and commissioning of controlled multidimensional TCD,FID,FPD based liquid GC having provision of Automated Gas sampling Valve and Electronic Pneumatics control system comprising of PC based human machine interfacing station for the analysis of natural gas from C1 to C6+ and liquid natural gas (LPG) from C1 to C12 in addition to analyze N2,O2,H2S and CO2 in a single run as per IS4576/ASTM D1945/ISO 6975 methods.
Item description, Technical specifications,Calibration mixture standard, and terms and conditions for supplying the GC are given below.

Analysis Requirement:

The Gas Chromatograph should have extensive self-diagnostics facility and should consist of three channels which may be run simultaneously or separately for three different type of application as follows:

2.2.1 Channel 1:

2.2.1.1 Should provide a guaranteed analysis of O2, N2, CO2, H2S, and C1 through C5 hydrocarbons and C6+ composite in natural gas using a TCD. In addition to the facility for injection of gas sample with gas tight syringe, this channel should also be equipped with a gas sampling valve for sample introduction directly from gas cylinder.

2.2.1.2 Column configuration and valve operation should be designed so that the lowest boiling C6 (2, 2-dimethylbutane) must be included in the back-flush on TCD channel. Separation and measurement of O2 and N2 individually is a requirement.

2.2.1.3 TCD detection limit:

2.2.1.3.1 O2 and C6+ composite minimum 0.01% & maximum 2%
2.2.1.3.2 H2S minimum 0.1% maximum 2%
2.2.1.3.3 N2 minimum 0.1% maximum 10%
2.2.1.3.4 C1 minimum 70% maximum 99%
2.2.1.3.5 All other components minimum 0.01% maximum 10%

2.2.2 Channel 2:

2.2.2.1 The other Channel should provide a capillary separation of hydrocarbon components in Natural Gas from C1 (methane) to C10 (Decane), using a boiling point capillary column and an FID. This Channel should also analyse LPG, a pressurized hydrocarbon liquid, having Propane(C3) and Butane (iC4 & nC4) as major components and Ethane(C2) and Pentane (iC5 & nC5) in traces. In addition to the facility of sample introduction through gas sampling valve, this channel should also have a liquid sampling valve with backpressure facility for homogenous introduction of pressurized liquid sample on the capillary channel. Syringe injection facility should also be there for both gas and liquid samples.

2.2.2.2 FID detection limit:-

For Gas Sample:

a) C1, i.e Methane, minimum 70% maximum 99%
b) C2 i.e Ethane & C3 i.e Propane minimum 0.01% maximum 10%
c) C4 i.e Butane onwards upto C6+ Trace to 3%.

For LPG Sample:

a) Propane(C4) and Butane (iC4 & nC4) around 50% by wt.
b) Ethane(C2) and Pentane (iC5 & nC5) minimum 0.01% maximum 2%

2.2.3 Equipment data processing software should have capability to produce a composite report by merging the TCD signal for CO2, H2S, N2 , O2, C6+ from Channel 1 and FID signal for C1-C12 from Channel 2 and H2S signal from FPD channel-3.

2.2.3 Channel-3
(FPD Channel for H2S detection)

2.3.0 Instrument Requirement:

2.3.1 Fully automatic microprocessor controlled GC with self-test during start up and self diagnosis facility.
2.3.2 Key Board and PC control of the system. Complete control of all GC parameters from PC is essential.
2.3.3 Chromatograph should have built-in graphical user interface, for ease of operation & total control through software.
2.3.4 EPC / PPC on all channels, carrier, injector, split, vent, detector and auxiliary gases with gas flow monitors.
2.3.5 Automatic lighting up of FID on reaching set temperature according to instrument method.
2.3.6 Auto shut down in case of leak or drop in carrier gas pressure.
2.3.7 Real time graphical signal output at all times.
2.3.8 System to be fully factory tested and calibrated.
2.3.9 Analysis Time: <30 min.
2.3.10 Menu driven user friendly Windows XP based S/W.
2.3.11 Snapshot facility for partial view of analysis results during run.
2.3.12 Real time display of Chromatogram / baseline and instrument status with key instrument parameters even when no run is in progress.

2.4.0 Oven capability:

2.4.1 Oven Temperature Range: 10 Deg C above Ambient to 450 Deg C
2.4.2 Oven heating rate: 50 Deg C to 250 Deg C in 2 minutes.
2.4.3 Oven cooling Rate: 250 Deg C # 50 Deg C in 5 minutes.
2.4.4 Column Overheat Protection: User settable up to 450 Deg C

2.5.0 Background correction: Should have for both the channels (FID & TCD) and also for FPD channel.

2.6.0 Columns & Valves: All columns, valves required for accomplishing the above analysis requirements must be included and the published application note in support of the corresponding application capability of the supplied system should be furnished as documentary evidence.

2.7.0 Detector Capability: FID

2.7.1 Minimum detectable level: <3.0 picogram C /Second
2.7.2 Auto flame ignition and flame out detection.
2.7.3 Flame out warning and ready interlock.
2.7.4 Signal filtration selection through software/touch screen graphics

2.8.0 Detector Capability: TCD

2.8.1 Minimum detectable :< 1ppm Nonane (C-9)
2.8.2 Automatic bridge balancing
2.8.3 Single or dual columns connection possibility

2.9.0 Sample Injection:

2.9.1 Gas Samples: Automatic gas sampling valves must be fitted to inject the sample automatically to both the TCD and FID channel. The system should have a sample loop purge feature to prevent contamination from liquid to gas or gas to liquid samples. The facility for injection through gas tight syringe should also be available.

2.9.2 Liquid Samples: The FID channel should also be connected to a liquid sampling valve with backpressure facility for homogenous introduction of pressurized liquid sample on the capillary column. Syringe injection facility should also be there for liquid samples.

3.0 CALIBRATION STANDARD MIXTURE.

3.1(A)Certified Calibration Gas Mixture(one for detection of natural gas from C1to C6+) and another from C2 to C12 supplied separately in two DIFFERENT WS steel cylinder/ Aluminium cane along with the supplied equipment.The relevant calibration gas mixture duly certified by NABL or equivalent laboratory (third party calibration certificate) as mentioned below must be supplied along with the instrument . The capacity of the calibration gas mixture should be 10 litre with filling pressure of 100 to 120 psi with following specification.

NATURAL GAS CALIBRATION MIXTURE COMPOSITION AND SPECIFICATION FOR TCD

Name of the componen	Mole%	Preparation tolerance	Certificate of Accuracy
N2	1 %	+/-10%	+/- 2%
CO2	1 %	+/-10%	+/- 2%
C2	6 %	+/-5%	+/- 1%
C3	3 %	+/-5%	+/- 1%
iC4	1 %	+/-10%	+/- 2%
nC4	1 %	+/-10%	+/- 2%
iC5	0.5 %	+/-10%	+/- 2%
nC5	0.5 %	+/-10%	+/- 2%
C6+	1 %	+/-10%	+/- 2%
C1 (Methane)	(BALANCED)	+/-1%	+/- 0.5%

Mixture Specifications

PRIMARY REFERENCE GAS MIXTURE STANDARD(Primary reference gas mixtures (PRGMS) should be supplied in 10 litre aluminium cane/ WS steel cylinder with proper connection (IS 3224) with Gas Mixture Pressureof about 100 psi.The price of the gas mixture should be included in the main equipment .

Stability of Gas Mixture: 12 TO 18 months from the date of delivery

Composition: All units are in Mole %

Measurement of uncertainty is required against each component in line with ISO: 10723

The supplier should be Accredited Laboratory in accordance with ISO/IEC 17025:2005 equivalent to NABL India / UKAS ,UK for both CALIBRATION AND TESTING for Natural Gas by accurate E1 CLASS STANDARD ONLY.

The Supplier should submit Performance Evaluation Certificate in accordance with ISO -10723 for their online Gas Chromatograph which they use for analysis and calibration of Natural Gas Mixture.
Traceability Certificate: (along with Chromatograms for the run) from NABL India / UKAS, UK OR equivalent accredited laboratories and essentially traceable to National / International standard. Each mixture composition should be of Primary reference gas mixtures (PRGMs) that are certified and issued by NABL (or equivalent in the chain of ILAC) accredited Lab or NMI, NPL India Or NPL UK, preferably calibration certificate should bear the logo that certifying agency NABL/UKAS ISO/IEC 17025:2005, certified copies of certificates /scope of accreditation provided by the accreditation agencies should be provided.

Preparation Method: Gravimetric Method as per ISO 6142 using most accurate E1 class

Method of analysis: As per ISO 6143:2001
Traceable weights, the weights must be traceable to NPL.

Test Certificate (meeting requirement of NABL) for the standard gas to be submitted along with the Cylinder.

Calibration Mixture certificate must have the following information.
The contents of the certificate shall include information described in ISO guide 31: 1996 and should provide the following as a minimum:
Identity of the producer & identification of the reference material
Description of the material & its use

Instruction on the correct use of the material
The assigned property values & the methods used to derive those values
Date of certification & the period of validity of the certificate
Safety instructions
An indication of the level of homogeneity of the material
Signature & names of the certifying officers signing the analysis certificate
Traceability & statement of uncertainty level at a state level of confidence
Mole% of components
Cylinder number
Gas pressure
Stability period
Minimum pressure of utilization
Impurities shall also be indicated in the certificate

3.1(B) CALIBRATION GAS MIXTURE COMPOSITION AND FOR FID GASES in 10 liter capacity aluminium cane.

Name of the component	Mole%	Preparation tolerance	Certificate of Accuracy
C2	5 %	+/-5%	+/- 1%
C3	3 %	+/-5%	+/- 1%
iC4	1 %	+/-10%	+/- 2%
nC4	1 %	+/-10%	+/- 2%
iC5	0.5 %	+/-10%	+/- 2%
nC5	0.5 %	+/-10%	+/- 2%
C6	0.30	+/-10%	+/- 2%
C7	0.15	+/-10%	+/- 2%
C8	0.15	+/-10%	+/- 2%
C9	0.15	+/-10%	+/- 2%
C10	0.05	+/-10%	+/- 2%
C11	0.05	+/-10%	+/- 2%
C12	0.05	+/-10%	+/- 2%
C1	BALANCE	+/-1%	+/- 0.5%

3.1 (C) CALIBRATION STANDARD for SULPHUR 100ml to 500ml capacity bottole

Calibration of sulphur components including hydrogen sulphide with tetrahydrothiophene (THT) .

3.1 (D) CALIBRATION STANDARD for LPG (500ml capacity bottle)

Ethane: Around 0.3
Propane: Around 50
Butane: Around 50
Pentane: Around 0.3
Hexane: Around 0.1

3.1 (E) GENERATOR

(1) HYDROGEN GENERATOR FOR GC APPLICATION:

Requirement: one number Make/Model:Perker/ H2PEM-510 or H2PD 300-

200 OR CLAIND Make: Model Hydro 200 OR
Equivalent Model Hydrogen generator from reputed company as per the following specification

SPECIFICATION of HYDROGEN GENERATOR

Design Technology : Proton exchange membrane technology
Hydrogen gas purity : 99.9995%
Flow rate : 300 cc/minute(maximum)
Deliverable pressure range: 5-175 psig(regulated)
Essential kits
Filters: 2 no ,
Desiccant catridge: 2no
Regulator: One Number
Liquid Electrolytes are to be provided along with the generator.
Features: Should have automatic deionised water filling facilitiy .
Electrical Requirements: 230 VAC, 50/60Hz
Outlet Port: 1/4" compression
Physical Dimension: Compact unit, handy and bench top placing.

(2) NITROGEN GENERATOR FOR GC APPLICATION
REQUIREMENT NO : 01(ONE)

(Used as Carrier gas, Make-up, ECD)

Make: CLAIND or equivalent Model: Brezza NiGen GC

OR Make : Parker,Model No HPN2-1100-220

OR
Any other equivalent make from reputed company with following specification

TECHNICAL SPECIFICATION OF NITROGEN GENERATOR:

The Nitrogen gas generator system should have an inbuilt oil free air compressor and hydrogen purifier.
Principle: Selective removal of O2, moisture, hydrocarbon and other trace gases from compressed air by using Carbon Molecular Sieve.
Purity of N2 gas: 99.9995% ATP
Pressure dew point: -70 deg C /-94 deg F at atmospheric pressure

Output flow rate: 1000 cc/min
Moisture Content: Less than 2.5 ppm
Max.Output pressure: 80 psi / 5.5 Bar
Electrical Requirement: 230 V 50 Hz 3 amps with 5 amps Indian type plug
Outlet port: 1/8 or 1/4 inch bsp female

Physical Dimension: Compact and Handy
Weight : ≤ 40kg

3.1 (F) GAS PURIFICATION SYSTEM

Gas purification channel like
Oxy trap & Moisture trap for Helium gas,
Gas Cleaner (Hydrocarbon trap and Moisture Trap) for Zero Air
Oxy Cleaner ,Moisture trap for Nitrogen

4.0 TECHNICAL SPECIFICATION & GENERAL REQUIREMENTS OF THE GAS CHROMATOGRAPH (GC):

The Gas Chromatography should have microprocessor controlled with detectors such as FID ,TCD & FPD for analysis of Natural Gas and Liquid Natural gas (LPG) and H2S complete with Generators for all gases that are required to run the system (e. g. Hydrogen generator, Air and Nitrogen Generator etc) of capacity adequate for supplying gas to the quoted chromatography system, along with all accessories required for immediate

commissioning in Duliajan, Assam , including UPS (5KVA with one hour back up) for smooth operation and functioning of the system.
4.1 The unit should be a dedicated and guaranteed instrument capable of analyzing Natural gas and LPG. For Natural Gas it should be capable of analysis from C1 to C12 component along with N2, O2, CO2 and H2S in one single GC run. The analysis method should be in compliance with IS4576/ASTM D1945/ISO 6975 methods and GPA 2286 extended standard
4.2 The handling and operating software should be latest version and should be upgraded from time to time.
4.3 Calibration gas mixture for Natural Gas and LPG from authentic sources should be supplied with composition listed in annexure.
4.4 The unit should be operable in 230VAC, 50 HZ and should be complete in all respects including initial commissioning spares for straightway commissioning in Laboratory.
4.5 Instrument should comply with the scope of ASTM IS4576/ASTM D1945/ISO 6975 methods and GPA 2286 extended standard
4.6 The Gas Chromatograph should have extensive self-diagnostics facility and the system may be run simultaneously or separately for two different type of application as follows: All Automatic Gas Sampling valve, loop, tubing & columns for H2S Analysis channel should be made of sulfur resistant material.
Channel 1:
4.7 Should provide a guaranteed analysis of O2, N2, CO2, H2S, and C1 through C5 hydrocarbons and C6+ composite in natural gas using a TCD and H2S Gas in series with FPD. This channel should be equipped with automatic gas sampling valve made of sulfur resistant material for sample introduction directly from gas cylinder.
4.8 Column configuration and valve operation should be designed so that the lowest boiling C12 must be included in the back-flush on TCD channel. Separation and measurement of O2 and N2 individually is a requirement.
4.9 TCD detection limit:

4.9 O2 and C6+ composite minimum 0.01% & maximum 2%
4.10 H2S minimum 0.1% maximum 2%
4.11 N2 minimum 0.1% maximum 10%
4.12 C1 minimum 70% maximum 99%
4.13 All other components minimum 0.01% maximum 10%

Channel 2:
4.14 The other Channel should provide a capillary separation of hydrocarbon components in Natural Gas from
C1 (methane) to C12 (Dodecane), using a boiling point capillary column and an FID. This Channel should also analyse LPG, a pressurized hydrocarbon liquid, having Propane(C3) and Butane (iC4 & nC4) as major components and Ethane(C2) and Pentane (iC5 & nC5) in traces up to C12. In addition to the facility of sample introduction through Automatic gas sampling valve, this channel should also have an Automatic liquid sampling valve with backpressure facility for homogenous introduction of pressurized liquid sample on the capillary channel. Sample will be injected through automatic gas or liquid sampling valve.

4.15 FID detection limit:-

For Gas Sample:
a) Hydrocarbon components in Natural Gas upto C12 (Dodecane) from 1ppm to 100%

For LPG Sample:

a) Propane (C4) and Butane (iC4 & nC4) around 50% by wt.
b) Ethane(C2) and Pentane (iC5 & nC5) minimum 0.01% maximum 2%
• Natural Gas Calculating software should be quoted. Equipment data processing software should have capability to produce a composite report by merging the TCD signal for CO2, H2S, N2 , O2, C6+ from Channel 1 and FID signal for C1-C12 from Channel 2 and FPD signal for H2s from Channel-3

5.0 GAS PURIFICATION CHANNEL

Gas purification channel like
Oxy trap & Moisture trap for Helium gas,
Gas Cleaner (Hydrocarbon trap and Moisture Trap) for Zero Air
Oxy Cleaner ,Moisture trap for Nitrogen

6.0 INSTRUMENT REQUIREMENT:

Fully automatic microprocessor controlled GC with self-test during start up and self diagnosis facility.
All Automatic Gas Sampling valve, loop, tubing & columns for H2S Analysis channel should be made of sulfur resistant material & mounted in a separate heated valve oven to avoid sample condensation & sample degradation.
6.1 Key Board or LED and PC control of the system. Complete control of all GC parameters from PC is essential.
6.2 Chromatograph should have built-in graphical user interface, for ease of operation & total control through software.
6.3 EPC / PPC/IEC on all channels, carrier, injector, split, vent, detector and auxiliary gases with gas flow monitors.
6.4 Automatic lighting up of FID on reaching set temperature according to instrument method.
6.5 Auto shut down in case of leak or drop in carrier gas pressure.
6.6 Real time graphical signal output at all times.
6.7 System to be fully factory tested and calibrated.
6.8 Analysis Time: <30 -35 minutes

6.9 Menu driven user friendly Windows XP or suitable operating system based S/W.
6.10 Snapshot facility for partial view of analysis results during run.
6.11 Real time display of Chromatogram / baseline and instrument status with key instrument parameters even when no run is in progress.
6.12 Fully automated microprocessor controlled with extensive self diagnostic facilities.
6.13 Capable to calculate the carrier gas linear velocity and the column void time.
6.14 Smart maintenance – Facility to access injectors and detectors with minimal effort using tool-free options and eliminate any downtime during maintenance with options of back-up injectors and detector modules
6.15 The system needs to have the flexibility of the instant connect injectors & detectors for Swapping detectors or upgrading from single to multi-detector by the user & it is to be easy enough so that even a laboratory personnel can perform the replacement without any special training needed.

Oven capability:
6.16 Oven Temperature: Ambient to 450°C with ramps 4 or above with settable maximum 125°C/minute or more and fast cool down of the oven temperature. Typical Retention Time Repeatability: <0.0008 min or better
6.17 Cooling down from 450°C to 50°C in less than 5 minutes;
6.18 Six independent heated zones for individual control of injectors and detectors plus auxiliary zone;
6.19 LAN interface; Simple start and stop buttons interface with status LED indicators
6.20 Oven heating rate: 50 Deg C - 250 Deg C in 2 minutes.
6.21 Oven cooling Rate: 250 Deg C - 50 Deg C in 5 minutes.
6.22 Column Overheat Protection: User settable up to 450 Deg C
6.23 Facility to install heated column oven & add on oven for installing more detectors & injectors in future.

7.0 Columns & Valves: All columns, valves(Make: valco) required for accomplishing the above analysis requirements must be included and the published application note in support of the corresponding application capability of the supplied system should be furnished as documentary evidence. All Automatic Gas Sampling valve, loop, tubing & columns for H2S Analysis channel should be made of sulfur resistant material.

8.0 Detector Capability: FID
8.1 Minimum detectable level: <1.4 picogram C /Second
8.2 Auto flame ignition and flame out detection.
8.3 Flame out warning and ready interlock.
8.4 Signal filtration selection through software/touch screen graphics
Detector Capability: TCD
8.5 Minimum detectable :< 400 pg tridecane /ml or 1ppm Nonane (C-9)
8.6 Automatic bridge balancing
8.7 Single or dual columns connection possibility
Detector Capability: FPD
8.8 Minimum detectable amount: 100 fg P/s and 5 pg S/s (Methyl Parathion)
8.9 Dynamic range: 104 (P), >103 (S)
8.10 Selectivity: P/C = 106:1, and S/C=106:1

8.11 Maximum temperature: 450 °C base temperature, 200 °C cell temperature; in steps of 0.1 °C
9.0 Sample Injection:
Gas Samples: Automatic gas sampling valves must be fitted to inject the sample automatically to TCD, FPD and FID channel. The system should have a sample loop purge feature to prevent contamination from liquid to gas or gas to liquid samples. Sample will be injected through automatic gas sampling valve
Liquid Samples: The FID channel should be connected to an Automatic liquid sampling valve with backpressure facility for homogenous introduction of pressurized liquid sample on the capillary column. Sample will be injected through automatic liquid sampling valve.

10.0 Data handling Software:
10.1 The software should be compatible with 32-bit Windows XP (SP2)/Windows Vista Business operating system or latest suitable operating system and should provide complete control of the system, apart from the following features:
10.2 Should have custom report generator facility using Microsoft Word
10.3 Should have Real time display of all chromatograms.
10.3 Should have Dynamic data exchange facility.
10.4 Should have facility for automatic calculation of Specific Gravity, Calorific value, Sp heat etc from the chromatographic composition. Natural Gas Calculating software should be quoted.

11.0 General Requirements of Data Handling Chromatographic Software

11.1 Latest software should be Windows 7 operative.

11.2 The offered software shall be the Original Full version single user license software. Software should be quoted with Part number.

11.2 The software should able to analyze natural gas using all channels of the instruments by simultaneous injection of the sample in the channels through GSV

11.3 Peak Identification requirements:

(a) Individual and group peak identification
(b) Drag and drop peak identification

11.4 Calibration facilities required:

(a) Single level, Bracketing, Multilevel Calibration as per IS4576/ASTM D1945/ISO 6975 and GPA 2286 extended standard method
(b) Use of Absolute and relative response factors
(c) Calculations as per IS4576/ASTM D1945, ISO 6976, GPA 2261 procedure

11.5 Management Procedures:

Traceability of Analysis and Calibration, Trend Analysis,
Approval of Analysis.
LIMS Connectivity
Remote diagnostics
Can able to store different 3 to 4 storage methods

11.6 The offered GC should have internal memory. In case of PC crashed data should not be lost. The software should have interface with memory for data security.

11.7 The software should take control of the instrument for the analysis of Natural gas and should comply with ASTM- D1945/ IS4576. Through this software, the analyzer should be able to analyze the Natural gas from C1 to C6+ (composite) including N2, O2, and CO2 in one single GC run. After the sample is analyzed, the data must be checked to determine its validity and the quality of the analysis which was performed. The unnormalized total of the molecular percentages of compounds analyzed should be within plus or minus one percent of one-hundred percent.

11.8 Accurate Calculation of Gas and liquid hydrocarbon Properties: Following points shall be considered.

i. Automatic results calculations and reporting.

ii. ASTM D1945/IS 4576,ISO 6976, GPA 2261 or equivalent

iii. Software should also include calculations for Oxygen correction.

iv. Software should be able to convert mole % to vol. %, and weight%. It should have the facility for data integration and automatic calculation of Specific Gravity, Calorific value, Sp heat etc from the chromatographic composition with proper unit such as BTU,K Calorie , Joule etc.

11.9 The software should be able to acquire data from the detectors and should have a single point control of all gas chromatographic parameters.

11.10 The software should have the facility for interactive graphics, tool bar facility for online editing , recalculation , batch data processing, overlay, peak integration, programmable integration control, baseline compensation, options for continuous averaging of calibration data, weighted regression etc..

11.11 Should have facility to recall multiple chromatograms simultaneously on the screen to compare the stored run with the current runs.

11.12 Should have Real time display of all chromatograms.

11.13 Software should have the facility to give the analysis report of Natural gas from the channels into an integrated single report as per the methods. The software should also have user program facility to generate ISO and ASTM reports after a chromatographic run.

11.14 Report Generation: Following facilities should be in the software for report generation:

(a)Customized report generation and calculations as per requirement.

(b) The software should also have the facility to calculate and report dry and wet calorific value, compressibility factors,density , specific gravity fuel mass ratio, air based upon oxygen content and Wobbe Index number as per international standard procedure. The international standards should be clearly indicated in the report.

(c) LIMS Compatibility, LAN Compatibility, User-friendly reporting formats and conversion to spread sheets and transmissions to other computers should be possible. Ethernet port for LIMS connection & unit networking. RS 232C port LIMS connection & USB port for external printer. Necessary software for LIMS compatibility to be offered.

General Notes to bidders:

1. The items listed in the scope of supply and scope of services are only minimum indicative requirement. Vendor shall supply the main equipment with all other supportive items such as Standard gas calibration mixture, Hydrogen generator,Nitrogen Generator, gas purification pannel,computer including software and hardware to meet the required functionalities of the GC mentioned in this tender document and to complete the job successfully.

2. All accessories and Standards mentioned above should be separetly quoted.However, the qouted price wil be considered for price bid evaluation

3.The quoted GC should be of latest proven model as on date of submission of offer and the year of lunching of the offer model should not be more than 5 years old from the date of bid closing date of the Tender. No refurbished built system other than original manufacturer's yard will be accepted. Bidder will be required to submit a list of customers to whom the same system has been supplied in India & Abroad and is being used for similar analysis purpose .E-mail ID of contact person, varifiable purchase order number and any other details for verification purposes are required to be submitted with bid .

4.List of consumables/ spares are to be quoted separately and the price of such spares and consumables are not be considered while evaluating the bid techno-commercially.

5.Bidder should provide all accessories/spares for initial commissioning free of cost along with the main equipment.

7.Supplier must provide repair kit of the equipment free of cost.

8.Authorized agent or a permanent office of the vendor with service facilities to be available in India . Bidders without this will not be considered for evaluation.

9.The offered GC should have all the design feature requirements as indicated in the ASTM/IP/ISO methods

10.Valve Diagram with column should be attached along with the quote. Factory certified schematic diagram, and confirmation of desired application along with bid.

11.The vendor should submit the test report of analyzer (CHROMATOGRAM) directly faxed from the original GC manufacturing Site.

12.The vendor should dispatch the GC from the factory or country of origin only after getting the acceptance certificate/letter.

13.Original Port of shipment document with serial number of the equipment should be provided prior to dispatch.

14.Warrantee / Guarantee : The Vendor shall provide minimum 01 year (excluding the outage period) warranty to the offered items starting from the date of successful completion in OIL premises. During warranty period if any

item of the offered systems fails or performance of the offered systems are not satisfactory, vendor has to replace/rectify the same within 30 days from the date of intimation by OIL, without any financial implication to OIL including courier charges, transportation and taxes for supplying the spares upto OIL premises to be borne by the vendor. In case of failure on the part of the successful bidder to rectify a fault of supplied items / equipment or software, within 30 days of reporting the problem, a penalty at the rate of 0.5% per day will be imposed till rectification of fault, subject to a maximum of 7.5% of the total value of the order. For any delay beyond 45days, the warranty period for all the items shall be extended on a pro-rata basis.

15.All visits (including transport to and from Duliajan and accommodation at Duliajan) by bidders personnel for warranty related work shall have to be borne by the successful bidder.

16.Technical support: Vendor shall support the offered system for minimum 10 years after successful commissioning by providing prompt action in any type of technical issues, modification, spares etc.

17.System license: The system with all functionalities shall be licensed to OIL usage after the successful commissioning. Vendor to handover license copy of all installed software after successful commissioning of the system.

18.Software upgradation: If any software upgradation required / released for the supplied system after the expiry of warrantee of the system, same shall be supplied to OIL by vendor free of cost without any price implication.

19.Inspection & test certificates: Vendor shall submit the inspection and test certificates, calibration reports traceable to applicable national and international standards for purchaser's review.

20.Installation and Commissioning of supplied system: Installation and commissioning of the total system is in vendor's scope. Vendor is to consider the following points in respect of installation and commissioning activities. Commissioning schedule:

21.After the receipt of the materials at OIL site, vendor shall mobilize required manpower / tools / machineries etc. to execute the installation and commissioning jobs at OIL site.

22.Vendor to provide all consumables and test standards required for commissioning of the system at OIL site along with the equipment.

24.Calibration:

24.1.For calibration purpose the bidder should supply one natural gas calibration gas mixture and one liquid gas calibration mixture and one H2S calibration mixture as per the specification mentioned in the scope of supply .

24.2The guaranteed calibration frequency of the Instrument must be indicated by the bidder. If the calibration goes out during this period the bidder has to rectify it at his own cost. The calibration procedure should be very clearly indicated in the tender.

24.3 Calibration if required to be done only by the manufacturer and it should be ensured during the visit for comprehenssive AMC.

25.Training:

25.1 Vendor shall organize onsite training to OIL Employees/executives covering all aspects of operation and maintenance of the instruments after successful commissioning of the equipments.

25.2 The training period shall be at least five days covering both for operation and maintenance.

25.3 A manual should cover all aspects of normal operation, maintenance, trouble shooting, do, don'ts etc.

26. TRAINING : Training to be organized during commissioning of the instrument.

27. Comprehensive Annual Maintenance Contract (AMC):The comprehenssive AMC cost after post warrenty period shall be taken into consideration for bid evaluation.

27.1 The party has to provide the year wise cost break up for Comprehenssive AMC for four years(yearly 2 visits) and the total 4 year cost of 8 visits for comprehenssive AMC should not be more than 15% of the cost of main equipment .

27.2 Bidder shall also provide the separate lists of consumables/spares which are included in the supplier's scope in comprehenssive AMC and which are not in supplier's scope.

27.3 Contractual Period: In case OIL exercises the option to enter into comprehensive AMC with the bidder, a separate contract agreement shall be made between the bidder and OIL for the AMC with the above terms and conditions after completion of 1 year period of warranty.

27.4 Types of visit: There will be two types of visit to OIL site - Normal and Emergency visit. One competent engineer from the bidder has to visit Duliajan at least once in 6 months for preventive and corrective maintenance of all supplied equipment including software upgradation.

27.5 Normal (Preventive) visit: To check the normal healthiness of the system and attending problem reported by OIL. Also vendor to carry out any software upgradattion or configuration of existing hardware/software, if felt necessary, as per OIL's requirement. Such a visit shall be planned on a mutually agreed schedule.

27.6 Emergency visit: There will be no limit for emergency visit. To attend any emergency situation reported by OIL, vendor shall mobilize their competent engineer to OIL site with in one week of the intimation.

28. Accommodation: All visits (including transport to and from Duliajan and accommodation at Duliajan) by bidders personnel for AMC related work shall have to be borne by the successful bidder.

29.Local conveyance shall be provided by OIL at Duliajan.

30.Payment terms: Pro rata basis against the submitted invoice after the completion of each visit.

31.Deviation from purchaser's requirement: Bidder shall be specific to OIL's requirement and shall offer as per OIL's terms & conditions and requirements. If there is any deviation, bidder shall indicate the deviation clearly with sufficient justification. Not indicating any deviation by the bidder shall be considered as full acceptance of the OIL's terms & conditions

Special Notes:

1. The items shall be brand new, unused & of prime quality. Bidder shall warrant (in the event of an order) that the product supplied will be free from all defects & fault in material, workmanship & manufacture and shall be in full conformity with ordered specifications. This clause shall be valid for 12 months from date of receipt at site or 18 months from the date of shipment/despatch. The defective materials, if any, rejected by us shall be replaced by the supplier at their own expense on FOR Destination basis. Bidders must confirm the same while quoting.

2. To ascertain the substantial responsiveness of the bid OIL reserves the right to ask thebidder for clarification in respect of clauses covered under BRC also and such clarificationsfulfilling the BRC clauses in toto must be received on or before the deadline given by thecompany, failing which the offer will be summarily rejected.

3. Other terms and conditions of the tender shall be as per "General Terms & Conditions" for e- Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders). However, if any of the Clauses of the Bid Rejection Criteria (BRC) / Bid Evaluation Criteria (BEC) mentioned here contradict the Clauses in the "General Terms & Conditions" for e-Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders) of the tender and/or elsewhere, those mentioned in this BEC / BRC shall prevail.

4. The items covered by this tender shall be used by Oil India Limited in the PEL/ML areas which are issued/renewed after 01/04/99 and hence Nil Customs Duty during import will be applicable. Indigenous bidder shall be eligible for Deemed Export Benefit against this purchase. Details of Deemed Export are furnished vide Addendum to MM/GLOBAL/01/2005 enclosed. However no Recommandary letters will be issued to Indian Bidders.

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ANNEXURE- B

BID REJECTION CRITERIA (BRC)/BID EVALUATION CRITERIA (BEC)

In addition to BRC/BEC criteria vide SECTION – 'D' of General Terms and Conditions for Global Tender (MM/ GLOBAL/E-01/2005), the following clause will be applicable against this tender.

The bids shall conform to the specifications, terms and conditions given in the tender. Bids shall be rejected in case the item(s) offered do not conform to technical specifications and to the respective international / national standards wherever stipulated.

Notwithstanding the general conformity of the bids to the stipulated specifications, and terms & conditions, the following requirements shall have to be particularly met by the bidders, without which the offer will be considered as non-responsive and rejected. All the documents related to BRC must be submitted along with the technical bid.

A) TECHNICAL:

1.0 BRC /BEC (Technical) - Qualification

1.1 The bidder shall be an Original Equipment Manufacturer of the tender item(s), or shall be an authorized dealer/distributor/ supply house of an Original Equipment Manufacturer of the tender item(s) having valid authorization letter/dealership certificate with warranty/guarantee back up from the principal (OEM). Copy of authorization letter/dealership certificate with warranty/ guarantee back up from the principal (OEM) shall be submitted along with the technical bid.

2.0 BRC/BEC (Technical) - Experience

2.1 In case the bidder is an Original Equipment Manufacturer of the tender item(s),

2.1.1 The bidder shall have experience of successful execution of past supply of tender item(s) for minimum twice the nos of tender quantity in last 5 years preceding the original bid closing date of the tender.

2.2 In case the bidder is an authorized dealer/distributor/supply house,

2.2.1 The OEM (principal) shall fulfill the experience criteria mentioned in clause 2.1.1 mentioned above.

2.2.2 Additionally, the bidder himself shall have experience of successful execution of past supply of tender item(s) at least equal to tender quantity in last 5 years preceding the original bid closing date of the tender.

2.3 The bidder shall submit documents in support of his previous supply experience and of the principal (OEM), as applicable under clause 2.1.1, 2.2.1 & 2.2.2, as follows:

(i) Copy(ies) of Purchase Order(s) and

(ii) Any one or combination of the following documents that confirms the successful execution of each of the purchase order(s) -

- Satisfactory completion report / performance certificate from the clients,
- Satisfactory Installation/Commissioning/Inspection Report
- Bill of lading,
- Delivery challan / invoice etc.
- any other documentary evidence that can substantiate the successful execution of each of the Purchase Order(s) / contract(s) cited above.

2.4 The bidder should have authorized service centre in India for providing after sales service and support.

(B) COMMERCIAL:

1) Commercial Bid Rejection Criteria will be as per Section D of General Terms & Conditions of Global Tender (MM/GLOBAL/E-01/2005) with following Special Bid Rejection Criteria.

2) Bids are invited under **Single Stage Two Bid System.** Bidders shall quote accordingly under Single Stage Two Bid System. **Please note that no price details should be furnished in the Technical (i.e. Unpriced)bid**. The "Unpriced Bid" shall contain all techno-commercial details except the prices, which shall be kept blank. The "Price Bid" must contain the price schedule and the bidder's commercial terms and conditions.
Bidder not complying with above submission procedure will be rejected.

2.0 **Bid security of US $ 2,059.00 or Rs. 140,000.00** shall be furnished as a part of the TECHNICAL BID (refer Clause Nos.9.0 & 12.0 (Section A) of "General Terms & Conditions" for e-Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders)).**Any bid not accompanied by a proper bid security in ORIGINAL will be rejected without any further consideration.** A bid shall be rejected straightway if Original Bid Security is not received within the stipulated date & time mentioned in the Tender and/or if the Bid Security validity is shorter than the validity indicated in Tender and/or if the Bid Security amount is lesser than the amount indicated in the Tender.

2.1 For exemption for submission of Bid Security, please refer Clause No. 9.8 (Section A) of "General Terms & Conditions" for e-Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB

Tenders).

2.2 The Bank Guarantee towards Bid Security shall be valid upto **18.05.2017**.

3) Validity of the bid shall be minimum 180 days from the date of Bid Closing Date. Bids with lesser validity will be straightway rejected.

4) Bidders must confirm that Goods, materials or plant(s) to be supplied shall be new of recent make and of the best quality and workmanship and shall be guaranteed for a period of 12(twelve) months from the date of successful commissioning against any defects arising from faulty materials, workmanship or design. Defective goods/materials or parts rejected by OIL shall be replaced immediately by the supplier at the supplier's expenses at no extra cost to OIL.

5) Successful bidder will be required to furnish a Performance Bank Guarantee @10% of the order value. The Performance Bank Guarantee must be valid for 12(twelve) months from the date of successful commissioning. Bidder must confirm the same in their Technical Bid. Offers not complying with this clause will be rejected

6) Bidders are required to submit the summary of the prices in their price bids as per bid format (Summary), given below :

(i) Price Bid Format (SUMMARY) for Foreign Bidders :

(A) Total Material Value :
(B) Packing & FOB Charges :
(C) Total FOB Port of Shipment value, (A + B) above :
(D) Overseas Freight Charges upto Kolkata, India :
(E) Insurance Charges :
(F) Total CIF Kolkata value, (C + D + E) :
(G) Installation/Commissioning Charges including Service Tax (if any) :
(H) Training Charges including Service Tax (if any) :
(I) Total Value,(F+G + H) :
(J) AMC Charges for 04(four) years including Service Tax after warranty :
(K) Grand Total Value including above (I+J) :
(L) Grand Value in words :
(M) Gross Weight :
(N) Gross Volume :

(ii) Price Bid Format (SUMMARY) for Indigenous Bidders:

(A) Total Material Value :
(B) Packing and Forwarding Charges:
(C) Total Ex-works value, (A + B) above :
(D) Sales Tax, (Please indicate applicable rate of Tax)
(E) Total FOR DespatchingStation price, (C + D) above
(F) Road Transportation charges to Duliajan
(G) Insurance Charges
(H) Assam Entry Tax
(I) Total FOR Duliajan value, (E + F + G + H) above

(J) Installation/Commissioning Charges including Service Tax (if any) :
(K) Training Charges including Service Tax (if any) :
(L) Total value, (I+J+K) above :
(M) AMC Charges for 04(four) years including Service Tax after warranty :
(N) Grand Value including (L+ M)above :
(O) Grand Value in words :
(P) Gross Weight :
(Q) Gross Volume :

7) The prices offered will have to be firm through delivery and not subject to variation on any account. A bid submitted with an adjustable price will be treated as non-responsive and rejected.

8) Bids received after the bid closing date and time will be rejected. Similarly, modifications to bids received after the bid closing date & time will not be considered.

9) Bids containing incorrect statement will be rejected.

10) Offers should be submitted with Integrity Pact duly signed by the authorized signatory of the bidder. If any bidder refuses to sign Integrity Pact or declined to submit Integrity Pact with the offer, their bid shall be rejected straightway.

(II) BID EVALUATION CRITERIA (BEC) :

Bids conforming to the specifications, terms and conditions stipulated in the tender and considered to be responsive after subjecting to the Bid Rejection Criteria will be considered for further evaluation as per the Bid Evaluation Criteria mentioned in Section D of "General Terms & Conditions" for e- Procurement as per Booklet No. MM/GLOBAL/E-01/2005.

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ANNEXURE-C

(A) COMMERCIAL CHECK-LIST

Sl. No.	PARAMETERS/REQUIREMENTS	BIDDER RESPONSE	REMARKS IF ANY
1.	Whether Original Signed quotation submitted?	YES/NO	
2.	Whether quoted as manufacturer?	YES/NO	
3.	Whether quoted as authorized dealer? [To Specify]	YES/NO	
4.	If quoted as authorized dealer,		
5.	(a)Whether submitted valid and proper authorization letter from manufacturer IN ORIGINAL confirming that bidder is their authorized dealer for the product offered?	YES/NO	
6.	(b)Whether manufacturer's back-up Warranty/Guarantee certificate submitted?	YES/NO	
7.	Whether ORIGINAL Bid Bond (not copy of Bid Bond) enclosed with the offer? If YES, provide details	YES/NO	
	(a) Amount :		
	(b) Name of issuing Bank :		
	(c) Validity of Bid Bond :		
8.	Whether offered firm prices?	YES/NO	
9.	Whether quoted offer validity of 120 days from the date of closing of tender?	YES/NO	
10.	Whether quoted a firm delivery period?	YES/NO	
11.	Whether quoted as per NIT (without any deviations)?	YES/NO	
12.	Whether any deviation is there in the offer?	YES/NO	
13.	Whether deviation separately highlighted?	YES/NO	
14.	Whether agreed to the NIT Warranty clause?	YES/NO	
15.	Whether Price Bid submitted as per Price Schedule?	YES/NO	
16.	Whether indicated the country of origin for the items quoted?	YES/NO	
17.	Whether all the items of tender quoted?	YES/NO	
18.	Whether technical literature/catalogue/drawings enclosed?	YES/NO	
19.	For Foreign Bidders - Whether offered FOB/FCA port of dispatch including sea/air worthy packing & forwarding?	YES/NO	
20.	For Foreign Bidders – Whether port of shipment indicated? [To specify]	YES/NO	
21.	For Foreign Bidders only - Whether indicated ocean freight up to C&F Kolkata port (Excluding marine insurance)?	YES/NO	
22.	Whether Indian Agent applicable?	YES/NO	
	If YES, whether following details of Indian Agent provided?		
	(a) Name & address of the agent in India – To indicate		
	(b) Amount of agency commission – To indicate		
	(c) Whether agency commission included in quoted material value?	YES/NO	
23.	Whether weight & volume of items offered indicated?	YES/NO	

24.	Whether confirmed to submit PBG as asked for in NIT?	YES/NO
25.	Whether agreed to submit PBG within 30 days of placement of order?	YES/NO
26.	For Indian bidders – Whether place of dispatch indicated in the offer? [To specify]	YES/NO
27.	For Indian bidders – Whether road transportation charges up to Duliajan quoted?	YES/NO
28.	For Indian Bidders only - Whether offered Ex-works price including packing/forwarding charges?	YES/NO
29.	For Indian Bidders only - Whether offered Deemed Export prices?	YES/NO
30.	Whether quoted prices are exclusive of Excise duty?	YES/NO
31.	For Indian bidders only – whether import content indicated in the offer?	YES/NO
32.	For Indian Bidders only - whether all Taxes have been indicated categorically?	YES/NO
33.	Whether all BRC/BEC clauses accepted?	YES/NO

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