NOTICE INVITING GLOBAL EXPRESSION OF INTEREST (EOI)

For
BIDDERS CONFERENCE FOR HIRING OF SURFACE PRODUCTION TESTING SERVICES FOR EXPLORATORY / DEVELOPMENT WELLS IN OIL’S OPERATIONAL AREA IN ASSAM & ARUNACHAL PRADHESH, INDIA.

EOI No.: OIL/EOI/BC/PDNO/21/2013

1. Introduction

OIL India Limited (OIL) invites interested and reputable contractors with relevant experience for Bidder’s Conference for its Exploratory /Development Well Testing Campaign in its Operational Area in the state of Assam and Arunachal Pradesh for a period of 3 (three) years with a provision for extension by another 1(one) year (Minimum 30 wells).

2. Brief description, work scope and services required

Land rig of 1400 HP/2000 HP/ are used to drill exploratory/development wells for onshore oil/gas field. To carry out the Exploratory /Development Well Testing programme, it is intended to hire Surface Production Testing Service from competent and experienced service providers.

The contractor is to provide Equipment as per the list given in Annexure-I with associated equipment / tools & services on hiring for a period of 3 (three) years for operations in Assam and Arunachal Pradesh with a provision for extension by another 1 (one) year. The equipment provided by the contractor will be utilized for carrying out necessary surface well testing operations in vertical wells, high angle deviated wells (S-bend, J-bend, extended reach, horizontal). Well depths are in the depth range of 2000 – 5,500 metres. Maximum working pressure will be of 10,000 psi and bottom-hole temperature ranges between 70 - 125˚C.

The Mobilization of ‘Surface Production Testing services package’ along with requisite manpower should be completed within 60 days of issue of LOA.

3. Interested Parties having the experience of providing Surface Production Testing Services to E&P companies are invited to submit their confirmation for participation in the Bidders Conference at our e-mail id: contracts@oilindia.in & pcmazumdar@oilindia.in followed by hard copies of the same and their credentials in a closed envelope sent through post or courier or delivered in person super-scribing “Bidders Conference: OIL/EOI/BC/PDNO/21/2013 for Surface Production Testing services” on the envelope latest by 17.06.2013 to the following address:

Head-Contracts
Contracts Department
Oil India Limited,
Duliajan, Assam-786602
Contact No:0374-2800548.

4. The Draft Scope of Work and price bid format are enclosed for the reference of interested parties as Annexure-II & III.
# LIST OF EQUIPMENTS

**Annexure-I to EOI**

<table>
<thead>
<tr>
<th>Sl No</th>
<th>ITEMS</th>
<th>UNIT</th>
<th>QTY</th>
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<tbody>
<tr>
<td>1</td>
<td>10000 PSI FLOW HEAD</td>
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<td>2</td>
<td>SURFACE SAFETY VALVE (SSV)</td>
<td>Each</td>
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<td>3</td>
<td>CHEMICAL INJECTION PUMP</td>
<td>Each</td>
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<tr>
<td>4</td>
<td>HEAT EXCHANGER-(Complete with integrated Module)</td>
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<td>5</td>
<td>HIGH PRESSURE PIPING PACKAGE</td>
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<td>MEDIUM PRESSURE PIPING PACKAGE</td>
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<td>7</td>
<td>LOW PRESSURE PIPING (VENT AND RELIEF LINES) PACKAGE</td>
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<td>8</td>
<td>3” FLEXIBLE FLOW LINE (COFLEXIP HOSE – 45FT)</td>
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<td>9</td>
<td>2” FLEXIBLE FLOW LINE (COFLEXIP HOSE – 45FT) – OPTIONAL</td>
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<td>10</td>
<td>DATA HEADER</td>
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<td>11</td>
<td>SAND DETECTOR SYSTEM</td>
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<td>12</td>
<td>SAND FILTER / DESANDER SYSTEM</td>
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<td>13</td>
<td>CHOKE MANIFOLD</td>
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<td>14</td>
<td>SURFACE PRESSURE &amp; TEMPERATURE RECORDER</td>
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<td>15</td>
<td>SEPARATOR (720 PSI)</td>
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<td>16</td>
<td>SURGE TANK</td>
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<tr>
<td>17</td>
<td>GAUGE TANK WITH HEATING COIL FACILITY</td>
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<td>18</td>
<td>OIL TRANSFER/LOADING PUMPS-4000bpd (Bowser loading pump)</td>
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<td>19</td>
<td>GAS BURNER FOR FLARING &amp; FLARE SET UP FACILITY WITH LAND(on lease for the testing period)</td>
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<td>20</td>
<td>AIR COMPRESSORS</td>
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<td>21</td>
<td>OIL DIVERTER MANIFOLDS</td>
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<td>22</td>
<td>GAS DIVERTER MANIFOLDS</td>
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<tr>
<td>23</td>
<td>PRODUCTION SHUT DOWN (PSD) SYSTEM</td>
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<td>TEST LABORATORY CABIN AND TESTING EQUIPMENT</td>
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<td>25</td>
<td>SURFACE DATA ACQUISITION SYSTEM WITH ACCESSORIES &amp; PROVISION FOR REMOTE DISPLAY</td>
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<tr>
<td>26</td>
<td>GAS FLOWMETER (SENIOR DANIEL ORIFICE TYPE)</td>
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<td>27</td>
<td>MASS FLOWMETER</td>
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<td>28</td>
<td>REALTIME DATA ACQUISATION AND REMOTE DISPLAY</td>
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<tr>
<td>29</td>
<td>SAMPLE BOTTLES / SAMPLER</td>
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<td>a.</td>
<td>SINGLE PHASE HIGH PRESSURE, CONVENTIONAL OIL, 10K PSI, 600 CC, IATA CONFORMING</td>
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<td>b.</td>
<td>HIGH PRESSURE, CONVENTIONAL OIL, 5K PSI, 600 CC, IATA CONFORMING</td>
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<td>c.</td>
<td>CONVENTIONAL GAS SAMPLER, 1500 PSI, 600CC, IATA CONFORMING</td>
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<td>d.</td>
<td>SAMPLE TRANSFER KIT FOR SURFACE &amp; BOTTOMHOLE SAMPLES.</td>
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<tr>
<td>e.</td>
<td>DEAD OIL SAMPLE CANS, 5 LTRS, IATA CONFORMING</td>
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<td>f.</td>
<td>WATER SAMPLE BOTTLES, 1 LITRE, PLASTIC OR GLASS</td>
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<td>27</td>
<td>SAFETY EQUIPMENTS</td>
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<tr>
<td>28</td>
<td>TOOLS, CROSS-OVERS &amp; SPARES</td>
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<td>29</td>
<td>FITTINGS AND NEEDLE VALVES</td>
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<td>30</td>
<td>ANY OTHER EQUIPMENT / TOOLS FOR SUCCESSFUL SURFACE TESTING SERVICE, BUT NOT MENTIONED ABOVE</td>
<td>Set</td>
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</table>
ANNEXURE-II to EOI

TERMS OF REFERENCE / TECHNICAL SPECIFICATIONS

for

SURFACE PRODUCTION TESTING SERVICES

A. Preamble

1.0 Introduction: Oil India Ltd (OIL), a premier National Oil Company engaged in the business of Exploration, Production and Transportation of Crude oil and Natural Gas intends to hire one set of Surface Production Testing Service and other related accessories for a period of 3 (three) years for operations in Assam and Arunachal Pradesh with a provision for extension by another 1 (one) year or part thereof and supply of another set of Surface Production Testing Service with manpower if required / called for.

2.0 Description: This section establishes the scope and describes the specifications, instructions, standards and other documents including the specifications for any tools or equipment to be supplied, which the Contractor shall satisfy or adhere to in the performance of the work.

3.0 Definition of Work: The contractor is to provide Equipments as per the list given in Annexure-I with associated equipment / tools & services on hiring as mentioned in clause 1.0 of this section or till the completion/ abandonment of last well at the same rates, terms and conditions. The equipment provided by the contractor will be utilized by Company for carrying out necessary surface well testing operations in vertical wells, high angle deviated wells (S-bend, J-bend, extended reach, horizontal). Well depths are in the depth range of 2000 – 5,500 metres. Maximum working pressure will be of 10,000 psi and bottom hole temperature ranges between 70 - 125°C.

3.1 OIL intends to hire the surface production testing service package to carry out surface production testing in few exploratory and remotely located wells (Minimum 30 nos) under its operational areas in Assam and Arunachal Pradesh.

3.2 Subsequent completion of initial surface production testing and establishment of commercially viable hydrocarbon in a particular well, the surface production testing service unit may also be decided for continuous engagement in that particular well itself to be utilized as Well Head Set up (WHS) for regular production on rental basis.

3.3 It is also intended to test few producing gas as well as oil wells for reservoir study purpose.

3.4 In the event of utilizing the supplied surface production testing service package as a regular production WHS, the provision for handling/producing 4-5 cluster wells shall required to be made. Accordingly, provision of multipoint (4-5 points)
production header (manifold), enhancement of produced fluid storage capacity (additional storage tanks) and all other related infrastructure facilities shall required to be made by the contractor as and when advised by OIL.

3.5 The contract service shall be for a period of 3 (three) year with a provision for extension of another 1(one) year or part thereof or till completion of the last well at the same rates, terms and conditions.

3.6 The well will be handed over to the contractor for carrying out surface production testing and for regular production after initial completion and activation.

3.7 The Scope of Services under This Contract is broadly as:

(i) Initial production testing of the newly completed drilling wells. (Well completion, activation, etc. shall be done by the company (OIL).

(ii) Production testing of producing gas wells.

(iii) Regular production through the WHS (round the clock) in shift basis.

(iv) To build facility set up for flaring of produced gas. The contractor has to acquire/lease the land for burner flare setup and the area is to be covered by 4 mtrs high double layered asbestos wall. The burner flare set up should be 90 mtrs away from the well head plinth as per OISD 118 norms. The contractor shall also be required to lease ROW to the flare pit (minimum 90 m in length & 3 m in breadth). The facility shall be as per prevailing environment & sound pollution norms of APCB, CPCB etc.

(v) Measure and record continuously produced fluid flow rates, surface pressure (FTHP, CHP and AP) and temperature of the fluid (oil, gas & water) at the wellheads & test separators in order to keep the well in good health and producing condition

(vi) Regular collection of well head sample, gas sample for the necessary analysis in the laboratory at OIL establishment as well as at well site laboratory.

(vii) To build facility set up for loading of produced liquid/fluid to 12kl / 20kl capacity bowser bower for transportation to CTF, Duliajan.

(viii) Custody transfer of produced fluid to central Bowser unloading station from the respective WHS. However, transportation of crude oil from respective well sites to central Bowser unloading station shall be OIL’s responsibility.

(ix) The Contractor shall have to supply and use their own tools & equipment/facilities etc as given in Annexure I to undertake the above services.

(x) The Contractor shall have to provide their competent / skilled manpower (personnel) as given in Annexure II on call out basis to undertake the above services.

(xi) The Contractor shall have to arrange for fooding, lodging and transportation service for their personnel as well as provisioning of materials / operational consumables including POL etc for smooth functioning of the Testing Facility / WHS.
The well test deliverables of the Surface Production test are broadly but not limited to:

a) Well deliverability-drawdown, skin, permeability, porosity, reservoir limit etc.

b) Representative reservoir fluid collection and fluid sample analysis-compositional analysis and PVT analysis.

c) Reservoir pressure, temperature and flow rate data acquisition.

d) Well Test report preparation & submission.

While operating the WHS by the successful bidder, the company (OIL) shall have the adequate monitoring, supervision and control over the overall operation including transportation of crude oil.

Strict compliance with statutory regulations like Mines and related acts/legislation, IBR, OMR, OISD norms and Pollution Control Board (state/central) etc. are to be complied by the successful bidder.

After completion of production testing/regular production in a particular well, the advice for inter-location movement (ILM) of production testing unit and Contractor’s personnel to other well sites shall be given by the Company. However, due to some unforeseen circumstances, in case, the next well is not ready for production testing and preceding well (i.e. where initial production testing was carried out) was also not viable for regular production, then the production testing equipment has to be moved to the Contractor's base at Duliajan or elsewhere on temporary demobilization and the personnel also has to be temporarily de-mobilized till the next well is ready for testing. Such advice for equipment movement to Contractor’s base and temporary de-mobilization of personnel shall be decided by the Company and shall be applicable during the contractual period.

Any other jobs relating to production testing but not covered herein.

The quantum of job may vary depending upon drilling activities to be taken up by the Company during the course of the contract and needs to be attended by the Contractor. The Contractor following mobilization of crew and equipment, will be required to provide the intended service as desired by the company as and when required basis in line with the contractual terms.

The Contractor’s entire fleet of equipment must meet the safety requirement and duty condition of safe, trouble free and uninterrupted operation as per sound industry practices. The contractor shall undertake operation and maintenance (O&M) of the equipments forthwith after supply of the equipment and shall be responsible for arranging all resources including competent manpower as per requirements of Indian Mines Act, its bye-laws & other legislations in force; employ insurance & benefits and all resources/facilities for continuous 24 (twenty four) hours operations on shift basis; public liability
insurance, routine & scheduled maintenance including running repairs and provision of relevant spares and consumables in relation thereto.

**Oil / Gas Well details:**

The majority of oil/gas fields in Upper Assam Valley lie in the south-eastern part of a hidden basement high. The alluvium covered foreland shelf zone of Upper Assam, which is a part of the major Assam-Arakan basin, forms the north-eastern corner of the Indian sub-continent. The estimated non-associated gas-in-place in Company's upper Assam fields is about 85.9 BCM of which 4.7 BCM has been produced till 01.04.2011.

The bulk of the hydrocarbons discovered so far in the region are contained in the the Tipams of Miocene age, Barails of Oligocene age and the Lakadong + Therrias of Paleocene/Eocene age. The presence of the producible oil/gas has also been established in younger Girujan-clay Formations of Upper Miocene age in some areas of Upper Assam basin.

Out of the wells drilled so far in the Upper Assam basin, some wells have penetrated the entire Tertiary sequence and other wells have been drilled down to Upper and/or middle parts of Barail formation of Oligocene age. Information obtained from these wells shows that except a few thin Paleocene/Eocene Limestone beds, the sediments are primary clastic in the Paleocene/Eocene times; rocks were deposited in marine environments which gradually graded into deltaic/fluviatile environments through Oligocene onwards.

Majority of the oil / gas wells are completed with 5. 1/2" production casing and 2. 7/8" tubing strings. Only a few newly drilled wells are completed with 3 ½" tubing in 95/8in casing. Few new wells are to be completed with 3 ½" - 4 1/2" tubing in 7" - 9 5/8" casing. There is no open-hole completion. The existing Non Associated gas wells are generally produced through individual surface production facilities like Indirect Heaters or Heater Separator Units; Some are produced in OCSs (Oil Collecting Station) also.

No sour gas been encountered.

Open-flow potential and build-up tests had earlier been carried out in a few wells. Only limited pressure-production data are available.

**Maximum Flow rate:**

- Maximum Flow rate : 20000 to 500000 SCMD AND 0 KLPD TO 450 KLPD
- Maximum FTPH : 350 ksc.
- Geothermal gradient: 2.5°C / 100 mtrs.

During initial production testing of newly drilled wells, well streams having wide range of characteristics will be encountered. The likely range of characteristics of the well fluid is given below for design purpose -

a) Water content (Produced) : 0% - 90%

b) API gravity of oil : 20 Deg - 35 Deg (for OIL),
c) Water specific gravity : 1.02 - 1.08

d) Gas gravity : 0.65 - 0.80 (Air = 1)

e) Pour Point of oil : 27 Deg - 33 Deg C.

f) Wax (Paraffin) content : 10% maximum by volume

g) Sand /solid/silt content : There may be some amount of sand/silt/drilling fluid content in the well stream

4.0 Generalized Stratigraphy/Litho-logy of the Area:

The majority of oil/gas fields in Upper Assam basin lie in the south-eastern part of a hidden basement high. The alluvium covered foreland shelf zone of Upper Assam, which is a part of the major Assam-Arakan basin, forms the north-eastern corner of the Indian sub-continent (Text Fig.- 1 refers).

The bulk of the hydrocarbons discovered so far in the region are contained in the sandstone reservoirs of Tipam formation of Miocene age, Barail sandstone reservoirs of Oligocene age and the Lakadong + Therrias / Langpar of Paleocene/Eocene age. The presence of the producible oil/gas has also been established in younger Girujan-clay Formations of Upper Miocene age in some areas of Upper Assam basin.

In OIL’s fields, primary exploration/development target has been crude oil resources. Out of the wells drilled so far in the Upper Assam basin, some wells have penetrated the entire Tertiary sequence and other wells have been drilled down to Upper and/or middle parts of Barail formation of Oligocene age. Information obtained from these wells show that except for a few thin Paleocene/Eocene Limestone beds, the sediments are primary clastic in the Paleocene/Eocene times; rocks were deposited in marine environments which gradually graded into deltaic/fluvial environments through Oligocene onwards.
The thickness of Tertiary sediments in the Upper Assam Shelf Basin ranges from 2.0 Km to more than 7.0 km, and include shallow marine Paleogene and continental Neogene and younger sediments overlying a granitic basement. The generalized stratigraphic succession of Upper Assam basin is given in Text Fig.-2.

**Text Fig.- 2: Generalized Stratigraphic Succession of Upper Assam Basin**

The general lithology of producing formations encountered in drilled wells, are as follows:

### Tipams

This is predominantly arenaceous range and is composed of salt and pepper coloured, medium grained sandstone with bands of blue and bluish gray shale. Some coal streaks are found at middle and lower Tipam.

The Tipams sands are fluvial in origin. Petrographically, the Tipams sandstones are described as lithic-arcsosic arenites ranging from fine to medium grained but locally coarse grained and conglomeratic. The predominant clay types vary from kaolinite in the Lower Tipams to smectite and smectite-chlorite in the Upper Tipams.

- **Porosities**: 18-21%, up to 25%.
- **Permeability**: 1 – 400 md
- **Bottom Hole Temp**: 62 – 90 °C generally 70 °C
Barail

It is commonly divided into two stages viz. Argillaceous and Arenaceous. The argillaceous range of Barail consists of mostly bluish gray mudstone with thin bands of fine grained sandstone and thin streaks of coal. In some areas, well-developed extra bands of fine grained sandstone ranges are found. The arenaceous range is comprised of mostly fine to medium grained sandstone with occasionally coal streaks, calcareous mudstone, and bluish gray shale. The Barail sands were deposited in a deltaic environment. The sandstones of the Barail are primarily quartz lithic arenites, typically fine or fine-medium grained and moderately well sorted. The lithic fragments are dominated by metamorphic schists but also include some mudrocks. Siderite is indicated as a widespread cement varying from locally minor to moderately abundant. Ankerite and quartz overgrowths are locally present and kaolinite is the predominant clay mineral.

- Porosities: 20-23%, up to 30%
- Permeability: 1 – 500 md
- Bottom Hole Temp: 65 – 100 °C generally 80 °C

Lakadong+Theria

This stage consists of carbonaceous shale with light gray to dark gray splintery shale, bluish gray shale, fine to coarse grained saccharoidal to calcareous, glauconitic sandstone. Thin stringers of coal, white and brownish charts are mostly present in middle and lower part.

- Porosities: 15-18%
- Permeability: 100 – 4000 md
- Bottom Hole Temp: 90 – 120 °C generally 105 °C

Langpar

Composed of mostly medium to coarse grained arkosic sandstone along with bluish shale streaks.

- Porosities: 13-20%
- Permeability: 100 – 2000 md
- Bottom Hole Temp: 100 – 110 °C

5.0 PRESENCE OF CO₂ & H₂S: Presence of CO₂ (around 2% - Max 10%). The wells are expected to be H₂S free.

B. SCOPE OF WORK:

OIL seeks to hire Surface production testing service package in OIL’s operational area in Assam and Arunachal Pradesh. Details of the formations are already described in the preceding paragraph. The details of Work/Services to be performed under the Contract are explained in the subsequent paragraphs.

1.0 SURFACE PRODUCTION TESTING SERVICE:

The production testing service shall consist of following:
a. Service of surface equipment like flow head, surface safety valve, choke manifold, oil and gas separator with oil and gas flow meter, pumps, automatic remote controlled multiple surface safety valves, hydraulically operated chokes, adequate surface flow lines, temperature/pressure and flow measurement, water in oil monitor, Data acquisition facilities and remote display, ESD/PSD systems, spares and any other materials required to perform production testing services.

b. Surface Production Testing supervisor for (i) Pre Job planning and post job management (ii) Periodical Hydraulic testing of all surface testing equipment (iii) Flow initialization and testing of the well (iv) operation and maintenance of all surface equipments (v) Relief valve calibration (vi) Sample collection and analysis (vii) Trouble shooting & rectification (viii) System Inspection (ix) Test data interpretation and (x) Any other service required to ensure an efficient & safe Production Testing operation.

c. Documentation to be submitted may include but not limited to equipment certification, inventory report, recent pressure test chart, relief valve calibration report, P&ID and Surface production testing equipment lay out drawings, operating procedures and post job report.

d. To build facility set up for Surface Production Testing tool/equipment storage, equipment servicing and testing, spares & consumables etc. at Company’s well site/Supply base.

e. Deliverables of the Surface Production test are broadly
   i) Well deliverability-drawdown, skin, permeability, porosity etc.
   ii) Representative reservoir fluid collection and fluid sample analysis-compositional analysis.
   iii) Reservoir pressure, temperature and flow rate data acquisition.
   iv) Well Test report preparation & submission.

f. To build facility set up for flaring of produced gas. The contractor has to acquire/lease the land (20m X 20m) for burner flare setup and the area is to be covered by 4 mtrs high double layered asbestos wall. The burner flare set up should be 90 mtrs away from the well head plinth as per OISD 118 norms. The contractor shall also be required to lease ROW to the flare pit (minimum 90 m in length & 3 m in breadth) .The facility shall be as per prevailing environment & sound pollution norms of APCB, CPCB etc.

g. To build facility set up for loading of produced liquid/liquid to 12Kl/20KL capacity bowsers for transportation to CTF, Duliajan.

3.0 General Notes

a. Details of Tools/Equipment and their operational requirement are given in Annexure-I.

b. The Scope of Work under operation and maintenance of the equipments includes all that are required for safe, trouble-free and uninterrupted operation as per appropriate industry practices. The Contractor shall undertake operation and maintenance (O&M) of the equipment forthwith
after supply and shall be responsible for arranging all resources including competent manpower as per requirements, its bye-laws & other legislations in force; employee insurance & benefits and all resources / facilities for continuous twenty four hour operations on shift basis; public liability insurance, routine & scheduled maintenance including running repairs and provisioning of relevant spares and consumables in relation thereto.

c. The Contractor shall maintain and preserve all records and documents relating to the performance of the Work mentioned in scope of work and anything else that may reasonably be required to preserve for a period of 3 (three) years from completion of this Contract.

4.0 Special Notes

a. Supply of Tool/ Equipment/ Manpower/ Consumables required for ensuring trouble free efficient operation for the assigned services is the sole responsibility of the Contractor.

b. The Contractor shall make themselves available for a joint discussion with OIL to formulate pre job planning after the award of Contract and prior to mobilization without any extra charge to OIL.

5.0 Reference Standards:

The total design and service shall be governed by the following reference standards wherever applicable –

- API Spec 5CT Specifications for tubulars and threads
- API Spec 6A Specifications for valves and wellhead equipment
- API Spec RP 17B Recommended practice for flexible pipes
- API RP 44 Recommended practice for sampling petroleum reservoir fluids.
- API RP 520 Recommended practice for sizing, selection and installation of pressure relieving devices.
- API RP 521 Recommended practice for pressure relieving and depressuring systems
- ASME-Section-VIII Divn. I and II Rules for construction of pressure vessels
- ANSI/ASME B 31.3 Chemical plant and petroleum refinery
piping.

✓ API RP 54  Recommended practice for Safety and health for oil & gas well drilling and servicing operation.

✓ Relevant OISD, CPCB, APCB etc. standards and bye laws.

6.0 **Personnel:**

a. The Contractor shall provide competent personnel with requisite experiences & qualifications as per the [Annexure-II](#) on round the clock basis. OIL reserves the right to decide for engagement of these personnel on the basis of verification of relevant documents prior to engagement.

b. The Contractor shall furnish along with their bid the detailed bio-data and supporting documents regarding academic qualification and experience of all the crew members to be deployed under the Contract as per [Annexure II](#).

c. Personnel deployed should be conversant with relevant safety practices.

d. Personnel should have good working knowledge in English.

e. If the Contractor is unable to provide the personnel initially identified in their offer and seek for deployment of alternate personnel having requisite qualification and experience set forth in the Contract, the Contractor may do so by taking prior approval from OIL.

f. The Well test In-charge shall head the team of Contractor’s crew and shall carry out all the jobs in consultation with OIL’s representative. He shall report to the office of the OIL’s representative regularly and also as and when called for receiving instruction / resolving any issue on contractual obligation. He must be available at call.

g. The Contractor may replace their personnel during their due off/ leave provided equivalent category of personnel is deployed and subject to approval from Company on their credentials.

h. The Contractor shall ensure that all the personnel shall have a full medical examination in accordance with accepted medical standard prior to engagement. In Case of any medical emergency/treatment of contractor’s personnel, the contractor shall be responsible for their treatment i.e. all such treatment cost has to be borne by the contractor.

i. Company reserves the right to disqualify a person in case of indiscipline, unfit due to medical reason, incompetence etc. to Work under the Contract.

j. Contractor may deploy additional personnel, if required, by taking prior approval from the Company. Such additional personnel shall be provided by the Contractor at their own cost.
7.0 **Vintage of Tools / Equipment:**

All major equipment offered for this tender i.e. Separator, Choke Manifold, Oil Transfer Pump, Surge Tank and Gauge Tanks shall **not be more than 5 (five) years old** (i.e. manufactured not before 5 years from the bid closing date).

8.0 **Safety, Health and Environment:**

Contractor shall comply with applicable environmental laws, statutory regulations as applicable to Oil Mines in India.

The Contractor is required to provide all its personnel with Personal Protective Equipment as per international practice, which may include, as appropriate, but without limitation the following:

- Safety Helmet
- 100% cotton or fire proof overalls
- Safety Foot ware
- Safety Goggles
- Other PPE, including gloves. Safety goggles/visor, hearing protection, safety belts etc.

9.0 **Supply Base:**

It will be contractor’s responsibility to maintain adequate space and utilities **at their appointed base** for storage of their Equipment, Tools etc. and workshop needs. All costs associated with establishing and running such facility will be to the Contractor’s account.

10.0 **Tools/Equipment/Spares/Consumables:**

The Contractor shall provide tools/equipment for the complete services. The Contractor shall keep sufficient back up tools and equipment, spares, elastomers, redress kits, etc. in order to ensure uninterrupted services. An indicative list of tools and equipment are given below. Any additional tools/equipments required to fulfill the scope of work but not covered in the list are also to be supplied by Contractor at no extra charge.
<table>
<thead>
<tr>
<th>SL No</th>
<th>ITEMS</th>
<th>UNIT</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SURFACE SAFETY VALVE (SSV)</td>
<td>Each</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>HEAT EXCHANGER-(Complete with integrated Module) or STEAM GENERATOR/PORTABLE BOILER with STEAM HEAT EXCHANGER (STEAM JACKET)</td>
<td>Each</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>HIGH PRESSURE PIPING PACKAGE</td>
<td>Set</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>MEDIUM PRESSURE PIPING PACKAGE</td>
<td>Set</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>LOW PRESSURE PIPING (VENT AND RELIEF LINES) PACKAGE</td>
<td>Set</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>3&quot; FLEXIBLE FLOW LINE (COFLEXIP HOSE – 45FT)</td>
<td>Set</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>2&quot; FLEXIBLE FLOW LINE (COFLEXIP HOSE – 45FT) – OPTIONAL</td>
<td>Set</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>DATA HEADER</td>
<td>Each</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>SAND DETECTOR SYSTEM</td>
<td>Each</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>SAND FILTER / DESANDER SYSTEM</td>
<td>Each</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>CHOKE MANIFOLD</td>
<td>Each</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>SURFACE PRESSURE &amp; TEMPERATURE RECORDER</td>
<td>Each</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>SEPARATOR (720 PSI)</td>
<td>Each</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>SURGE TANK</td>
<td>Each</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>GAUGE TANK WITH HEATING COIL FACILITY</td>
<td>Each</td>
<td>4</td>
</tr>
<tr>
<td>16</td>
<td>OIL TRANSFER/LOADING PUMPS-5000bpd [Bowser loading]</td>
<td>Each</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>GAS BURNER FOR FLARING &amp; FLARE SET UP FACILITY WITH LAND(on lease for the testing period)</td>
<td>Package</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>AIR COMPRESSORS</td>
<td>Each</td>
<td>2</td>
</tr>
<tr>
<td>19</td>
<td>OIL DIVERTER MANIFOLDS</td>
<td>Each</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>GAS DIVERTER MANIFOLDS</td>
<td>Each</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>PRODUCTION SHUT DOWN (PSD) SYSTEM</td>
<td>Each</td>
<td>1</td>
</tr>
<tr>
<td>22</td>
<td>TEST LABORATORY CABIN AND TESTING EQUIPMENT</td>
<td>Set</td>
<td>1</td>
</tr>
<tr>
<td>23</td>
<td>SURFACE DATA ACQUISITION SYSTEM WITH ACCESSORIES &amp; PROVISION FOR REALTIME REMOTE DISPLAY</td>
<td>Set</td>
<td>1</td>
</tr>
</tbody>
</table>

**WATER IN OIL MONITOR**
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>GAS FLOWMETER (SENIOR DANIEL ORIFICE Type)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SAMPLE BOTTLES / SAMPLER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. <strong>HIGH PRESSURE, CONVENTIONAL GAS, 1500 PSI, 600 CC, IATA CONFORMING</strong></td>
<td>Each</td>
<td>6</td>
</tr>
<tr>
<td>b. <strong>OIL SAMPLE CANS, 5 LITRE, IATA CONFORMING</strong></td>
<td>Each</td>
<td>10</td>
</tr>
<tr>
<td>c. <strong>OIL SAMPLE CANS, 1 LITRE, IATA CONFORMING</strong></td>
<td>Each</td>
<td>20</td>
</tr>
<tr>
<td>d. <strong>WATER SAMPLE BOTTLES, 1 LITRE, PLASTIC OR GLASS</strong></td>
<td>Each</td>
<td>10</td>
</tr>
<tr>
<td>e. <strong>LABELS AND CONSUMABLES FOR ALL THE ABOVE</strong></td>
<td>Set</td>
<td>1</td>
</tr>
<tr>
<td><strong>SAFETY EQUIPMENTS</strong></td>
<td>Set</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOOLS, CROSS-OVERS &amp; SPARES</strong></td>
<td>Set</td>
<td>1</td>
</tr>
<tr>
<td><strong>FITTINGS AND NEEDLE VALVES</strong></td>
<td>Set</td>
<td>1</td>
</tr>
<tr>
<td><strong>ANY OTHER EQUIPMENT / TOOLS FOR SUCCESSFUL SURFACE TESTING SERVICE, BUT NOT MENTIONED ABOVE</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note 1:** No back up for the above table is required. The contractor has to provide sufficient back up of SWT equipment spares/ consumables (‘O’ rings, elastomers/ rubber seals, redressing kits etc) in order to ensure uninterrupted services.

**Note 2:** Any additional tools / equipments required to fulfil the scope of work but not covered in the above Table are also to be supplied by the contractor at no extra cost.

**Note:** The above list of tools/ equipment/ spares/ consumables is indicative and shall be used for evaluation purpose. However, the Company reserves the right to modify the quantities or remove some of tools/ equipment/ spares/ consumables at the time of Award of Contract.
11.0 **MOBILIZATION SCHEDULE:** The bidder must be in a position to mobilize the services as under:

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Mobilization Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobilization of Contractor’s tools &amp; equipment, accessories, consumables etc.</td>
<td>Within 90 days of Mobilization notice issued by the Company</td>
</tr>
<tr>
<td>Interim de-mobilization &amp; remobilization of Contractor’s tools &amp; equipment, accessories, consumables etc.</td>
<td>Within 30 days of Mobilization notice issued by the Company</td>
</tr>
<tr>
<td>Mobilization of Contractor’s Personnel</td>
<td>Within 10 days of Mobilization notice issued by the Company</td>
</tr>
</tbody>
</table>
A. SPECIFICATION OF SOME OF THE MAJOR TOOLS AND EQUIPMENTS:

1.0 Surface Production Testing Services

All data headers and pressure bleed off points upstream of and including the choke manifold shall each be equipped with double block and bleed needle valves with 10,000 psi minimum pressure rating. The details of the required Surface Production Testing (SPT) Equipment and accessories suitable for 10000 psi working pressure are as under:

1.1 Surface Safety Valve (SSV)
- Suitable line connection is required to connect the upstream of SSV with X-mass tree (2 9/16” X 2 1/16” X 5K/10K) and downstream to be connected with choke manifold.
- Working Pressure 10,000 psi
- Test pressure 15000 psi
- Shall be hydraulically operated fail-safe to closed position
- Shall be able to close in less than 25 seconds at operating pressure.
- Shall be complete with a control system, with an interface to the Production Shut Down System(PSD) for emergency remote closure in parallel with the surface tree production wing valve
- Should be frame mounted with lifting eyes and slings/chains

1.2 Heat Exchanger (Complete with Integrated Module)
- The Heat Exchanger shall be bath type Indirect Heater with Diesel fired burners.
- The pressure coil should have minimum two passes through the heater for efficient heat transfer.
- Working Pressure 10,000 psi
- Automatic diesel shut down valve activated by pilot light stoppage
- Flame arrestor at burner air inlet
- Minimum 2 MM BTU/Hr capacity

OR

STEAM GENERATOR/PORTABLE BOILER

- Steam output = Minm1000 kgs/hour.
- Should come with a minimum steam hose length = 100 m.
- Should be equipped with gas detection system and emergency shut down system.
- Diesel fired/Natural gas fired
- IBR certified.
- Minm 10 kg/cm² pressure.

&
**STEAM EXCHANGER (STEAM JACKET)**

- Minimum heating capacity = 4.3 MMbtu/hr
- Pressure maximum rating = 10,000 psi.
- Temperature = -4°F to 200°F.
- Should have a bypass manifold.
- Must be compliant with API 6A standard.


1.3 **High Pressure Piping Package**

- Suitable for 10K WP.
- Set to include elbows, straights, swivels and any x-overs needed for connections.
- All piping connection upstream of choke manifold to be high pressure piping of suitable size, length.

1.4 **Medium Pressure Piping Package**

- Suitable for 5K WP.
- Set to include elbows, straights, swivels and any x-overs needed for connections.
- All piping connection downstream of choke manifold to upstream of separator to be medium pressure piping of suitable size, length.

1.5 **Low Pressure Piping (Vent and Relief Lines) Package**

- Set to include elbows, straights, swivels and any x-overs needed.
- Suitable for 1.5K WP.
- All piping connection downstream of separator to be low pressure piping of suitable size, length.

1.6 **3” Flexible Flow Line (COFLEXIP Hose – 45FT)**

- Should be of single length (45 feet), suitable for connecting flow head with stand pipe even in stabbed out condition if permanent packer is used.
- W.P. 10000 psi

1.7 **2” Flexible Flow Line (COFLEXIP Hose – 45FT) - Optional**

- Should be of single length (45 feet), suitable for connecting X-mass tree with stand pipe even in stabbed out condition if permanent packer is used.
- W.P. 10000 psi
1.8 Data Header

- 10000 psi rated to be sited upstream of choke manifold.
- Shall have sufficient points for pressure and temperature gauges(thermo-wells or strap-on thermo-transducers), electronic data acquisition sensors, dead weight tester, sampling and injection, each equipped with double needle valves.

1.9 Sand Detector System

- Should be installed downstream of the chokes on the choke manifold
- Intrusive system working on erosion probe principle is acceptable
- Output should be a pressure signal with local gauge reading as well as data acquisition system readout and alarm

1.10 Sand Filter / Desander System

- Suitable for removing sand from crude oil and / or gas flow.
- Working Pressure 10,000 psi.
- Should have double isolated accumulation vessel for continuous operation.
- Sand hold up volume at least 75 lts.
- Interconnecting piping with by-pass and drain

1.11 Choke Manifold

- Two flow paths, one with facilities to install and change fixed chokes and one with an adjustable choke. Each flow path shall have minimum two closing valves with bleed off facilities between the upstream and downstream valve and ports for pressure measurement and bleed off on both sides.
- Working Pressure 10000 psi
- Test pressure 15000 psi
- API 6A solid block Gate valves
- Minimum 5 valve configuration
- All valves in the choke manifold shall have the same pressure rating
- One full set of choke beans up to 64/64”
- Pressure gauge with ½” NPT connection
  - 0 – 10000 psi
  - 0 – 5000 psi
  - 0 – 1000 psi
  - 0 – 500 psi
  - 0 – 100 psi
- Hand wheels & choke bean wrench
- Steel braided rubber tube with connection ½” NPT size 10’ long suitable for 10000 psi for sampling purpose.
- Shall be arranged on a frame, including lifting eyes and slings/chains

1.12 Surface Pressure & Temperature Recorder

- Recorders should have mechanical as well as digital input and operation.
- Pressure to be tapped from 1/2’ NPT needle valve box.
- Temperature to be measured from 1/2’ Autoclave weld neck pocket or strap-on thermo-transducer.
- Provided with sufficient length of high pressure hose (10,000 psi WP) with 1/2” NPT connectors
- Chart drive mechanical, one revolution in 24 hrs.
- For digital recorders data should be recorded versus time.

1.13 Separator (720 psi Design Pressure)

- Shall be suitable for three phase separation
- For Gas well Liquid handling capacity – 0 to 100 KLPD (0 – 600BPD), Gas handling capacity – 30000scmd to 750000scmd at an operating pressure of 300 psi.
- For Oil well Liquid handling capacity – 10 to 300 KLPD (60 – 1650 BPD), Gas handling capacity – 2000scmd to 100000scmd at an operating pressure of 50 psi.
- Vessel sizing calculation is to be provided.
- The following features shall be included
  - Pressure control system
  - Oil level control system with liquid level glass
  - Positions for both data acquisition transducers and pressure and temperature gauges on vessel, gas and oil lines.
  - Oil, water and gas metering facilities to cover the full flow capacity range of the separator
    - Suitable flow meters to measure liquid and gas flow rates
    - Online water in oil monitor
  - Sampling outlets at oil, gas and water lines
  - Flange connection in vertical section of gas outlet line for gas sample collection
  - Shall be equipped with manhole situated so that internal visual inspection and cleaning can be done
  - Inlet manifold shall enable by-pass to either oil or gas discharge line. The manifold shall be equipped with sufficient valves to isolate the vessel itself
  - Shall be equipped with two independent pressure relief devices, protecting the vessel against overpressure/rupture. Each individual device shall be capable of discharging the maximum well production rate in case of overpressure.
1.14 Surge Tank

- Shall have a capacity of minimum 100 bbls, two compartment.
- Shall be able to operate up to a pressure of minimum of 50 psi
- LP gas meter to allow GOR calculation
- The following features shall be included
  - Pressure control system
  - Externally mounted Liquid level glasses for visual inspection of liquid/gas interface
  - Shall be equipped with positions for analog pressure and temperature measurement on vessel
  - Inlet manifold shall enable by-pass of fluid to oil discharge line. The manifold shall be equipped with sufficient valves to isolate the vessel itself
  - Shall be equipped with pressure relief device, protecting the vessel against overpressure/rupture
  - Grounding device

1.15 Gauge Tank/ Crude Oil Storage Tank

- Atmospheric working pressure
- Minimum 200 bbls capacity, two compartments – 4 nos
- Calibrated dip sticks
- Externally mounted sight glass and by-pass manifold.
- Shall be mounted with internal heating coils.
- Associated pipe fittings for inlet and outlet connections
- Fitted with stair case, dip measuring device/valves etc.

1.16 Oil Transfer Pumps

- Should be hooked up in the manifold of gauge tank for direct suction and delivery to enable loading of 12kl/20kl capacity bowsers for transfer to produced liquid to CTF, Duliajan.
- Shall be capable of emptying tank during flowing with a rate of minimum 4000 bpd
- Driven by flame proof electric motor or compressed air
- Check valves fitted to pump or pump manifold to prevent backflow through the pump.

1.17 Gas Burner for Flaring & Flare Setup Facility with Land

- Shall be capable of complete combustion of up to 30MMScf/day gas without fall-out.
- One (1) environmentally friendly gas flare shall be supplied. The air and oil inlet to each head shall have an isolation valve. The burner design shall be such that flaring of hydrocarbons gas is smokeless, fallout-free and achieved at minimum noise levels.
- Minimum three head Burner
- Procurement of requisite area (30m X 30m) of land on lease for the entire testing period along with ROW (90m length X 3m breadth)
- Includes remote electrical ignition system
• Piping package for flare connection 90 mtrs for Gas.

1.18 **Air Compressors**

• Should be able to supply sufficient quantity of air (500-600 scft at 100 psi) to burner for complete combustion of well effluents.
• Shall be equipped with automatic shutdown device in case of exposure to hydrocarbon gases
• Electrical/diesel powered, flame proof.
• Complete with 200 ft of hose and suitable end connection to connect with air line of burner.

1.19 **Oil Diverter Manifolds**

• To divert oil to flare or process equipment as required
• WP 1440 psi.
• Should have ball/plug valves.

1.20 **Gas Diverter Manifolds**

• To divert oil to flare or process equipment as required
• WP 1440 psi.
• Should have ball/plug valves.

1.21 **Production Shut Down (PSD) System**

• Shall be capable of shutting in the well on the flow head production wing valve and surface safety valve. Activation shall take place as automatic functions from sensors installed as mutually agreed using API RP 14C as a guideline, or by manual activation of PSD push buttons panel located at the following minimum places:
  • Driller’s cabin
  • Separator area
  • Inside or outside Operator’s office
• A box with lid, to avoid accidental activation of PSD, shall protect Push Button panel.
• Each set should have 3 nos. of high –low pilots.
• One no. high-low pilot each between
  • Flow head & Choke manifold
  • Choke Manifold & Heater
  • Heater & separator

1.22 **Test Laboratory Cabin and Testing Equipment**

• Class 1 Division 11 rated
• Should be equipped with the following equipment:
  • Data acquisition system including
    ◦ Pressure, temperature, level transducers
    ◦ Cabling
Online gas & oil flow meters & water in oil monitor calibration.
- Computer hardware and software
  - Pressure gauges, ranges to include at minimum 0-10000 psi, 0-5000 psi, 0-2000 psi, 0-200 psi
  - Thermometers
  - Gas gravitometer
  - Centrifuge (manual)
  - Hydrometer set
  - Dead weight tester
  - Gas sniffers
  - Portable H₂S (range 10 ppm) and CO₂ detection equipment
  - Equipment to collect well fluid at surface for PVT analysis.

**Note:** The onsite Test Laboratory should be self-equipped to measure all the parameters of the well fluid.

### 1.23 Surface Data Acquisition System & real-time remote display

- Sensors for Pressure and temperature measurement, level transducers
- Cabling
- Real time recording of data and remote display
- Provision shall be available for continuous monitoring of wellhead pressure and temperature at surface test tree, annulus pressure, separator oil, gas and water flow rates, separator pressure and temperature, and separator downstream parameters
- All sensors and metering devices shall have valid calibration.

### 1.24 Sample Bottles

- Conventional gas sampler, 1500 psi, 600cc, IATA conforming – 6
- Oil sample cans, 5 ltrs, IATA conforming – 10
- Oil sample cans, 1 ltrs, IATA conforming – 20
- Water sample bottles, 1 litre, plastic or glass – 10
- Labels and consumables for all the above

### 1.25 Safety Equipments

- Fire extinguishers
- Portable H₂S (Level-10 ppm and beyond) and CO₂ detection equipment
- Portable explosimeter
- Personnel protective equipment

### 1.26 Tools, Cross-Overs & Spares

- Containerized workshop / store with power and lighting
- Includes all hand tools, all types of cross-overs, spare parts etc required for surface testing operations
- Hose baskets, pipe racks and baskets etc
1.27 Fittings and Needle Valves

Needle valves and fittings, to supply all pressure, temperature and sampling point upstream of the heater with double block and bleed.

2.0 Operational Requirement:

1.0 Surface Equipment

a. The pressure relief system from all relief devices shall be routed to relief headers for high and low pressure relief. It will be Contractor's responsibility to ensure that the relief system is suitably sized to discharge the maximum gas and / or liquid design flow rate. The discharge shall be directed to the flare stack.

b. The interconnecting piping shall be laid and installed by the Contractor after due approval from the OIL in charge at site. All piping shall be securely anchored and grouted. When the piping installation has a change of pressure rating, the lower rated pipe shall be adequately protected against overpressure.

c. Each and any individual component in the process plant downstream of the choke manifold shall have the feature to be bypassed.

d. Burning of hydrocarbons shall take place without any pollution to atmosphere. All effort shall be made to minimize smoke to air.

e. The heat radiation calculations shall be submitted for OIL showing the maximum exposure at maximum production rate in a worst case scenario.

f. All surface pressure containing piping and vessel shall be installed in such a way that blow down of the equipment is possible from a safe area through a manual activation feature.

g. All process control shall be local pneumatic control.

h. All the surface equipment necessary for the job shall be skid mounted for ease of transportation and installation.

i. Area illumination using FLP electrical lighting system/facility, earthing system and other ancillary equipments that are run on electrical power using sound proof generators are to be provided by the contractor.

j. Safety Equipment / Services:

Safety: The Contractor shall observe all safety regulations in accordance with acceptable oilfield practices and applicable Indian Laws including provisions of
OMR, OISD, MoEF & State Pollution Control Board. The Contractor shall take all measures reasonably necessary to provide safe working conditions and shall exercise due care and caution in preventing fire, explosion and blow out and maintain fire and well control equipment in sound condition at all times. The Contractor shall conduct such safety drills, BOP tests, etc. as may be required by the Company at prescribed intervals.

k. Security Services:

The Contractor shall be wholly responsible for complete Security of their personnel, their surface well test package, Well Sites, Base Camp, etc. during ILM, operations, transit etc. and arrange suitable, complete and best Security services accordingly on round the clock basis for their personnel and equipment, equipment & other materials of the Company & the Company’s third party service providers at well sites throughout the tenure of the contract. All security related issues shall be dealt with by the Contractor on their own including dealing with Government agencies. Suitable fencing with security gate & proper area lighting at well site as well as at camp sites will be the sole responsibility of the Contractor. The Company will in no case be involved in security related issues. The Contractor shall also be responsible for safety and security of the Company’s & Company’s third party personnel / equipment / tools / materials etc. at the well site and at camp site and shall provide best security services to them during the tenure of the contract.

4.0 General Standard of Equipment

All equipment supplied for use upstream of and including the choke manifold is to be rated to a minimum of 10,000 psi WP unless otherwise specified. All equipment supplied for use downstream of the choke manifold upto separator is to be rated to a minimum of 5,000 psi and all the equipments supplied for use in downstream of separator shall be 1500 psi unless otherwise specified.

Surface Testing Equipment should be capable of handling 4000 bbl/day liquids, 30 MMscf/day Gas.

All surface vessel/equipments are to be skid mounted

All lifting equipment should have been manufactured in accordance with API specifications 8A and 8C and should be inspected and certified according to API recommended practice RP8B Categories I-IV.
ANNEXURE II to Scope of work

QUALIFICATION AND EXPERIENCE OF PERSONNEL:

1.0 WELL TEST IN-CHARGE (WTI) : 1 NOS

- Person should be Graduate in Engineering (or equivalent) with minimum 5 years of experience wells in operation and maintenance of Surface Testing as an In-charge.
- He should have adequate administrative skills to independently run the operation and manage a group of manpower deployed under him. Amongst these people, he should handle any industrial unrest scenario arising out his subordinates.
- The WTI shall head the team of Contractor’s crew and shall carry out all the jobs in consultation with OIL’s representative. He shall report to the office of the OIL’s representative regularly and also as and when called for receiving instruction / resolving any issue on contractual obligation.
- To recommend surface well testing plan and equipment layout to OIL India Ltd. for approval.
- The WTI shall attend duty as and when the job demands and shall be available for 24 Hours and shall be in constant touch with the Company representatives stationed at well site.
- He will be overall responsible for the trouble free operation of the equipments
- He should conversant with all the software to be used for the above services.
- WIT will be responsible for Pre Job planning, design, operation, post job management, final test report preparation & submission, system inspection and maintenance of Surface test equipment. The final test report is to be submitted within 7 days of completion of the testing.
- He should have knowledge of Hazardous Area and conversant with relevant Safety and Environment Regulations. In operation and maintenance of all the tools and tackles, machineries used for the operation. He should have experience to critical and emergency situation.

2.0 PRODUCTION TESTING SUPERVISOR: 2 NOS

- Person should be Diploma in Engineering (or equivalent) with minimum 5 years of experience in production Testing.
- The person will be responsible for all the operation mentioned in Scope of Work
- The person is to report to WTI for any abnormality in the operation.
- The testing supervisor should be able to work as an expert of well testing and should be able to supervise operations, repair and maintenance of PTS equipment during well testing
He should be well versed with the latest testing technology, work procedures, in accordance with internationally recognized safe well testing methodology.

The testing supervisor will also be responsible for preparing the different production testing plans as per the scope of work, for approval of OIL India Ltd.

3.0 WELL TEST OPERATOR: 4 NOS

- Well test Operator should have a minimum of 2 years of experience in operating production testing surface equipment.
- All the said personnel should possess valid training certificates from approved agencies under International Safety Management Code in respect of fire prevention and fire fighting and first aid in addition to medical fitness certificate.
- The Contractor should submit a list of personnel who are likely to be deployed for the subject services to Operator for approval. They should fulfill the above qualifications and experience.
- The Contractor shall furnish a list of available personnel who will be deputed for providing services at the beginning of the contract.

4.0 DATA ACQUISITION, PROCESSING AND INTERPRETATION SPECIALIST: 1 NOS

- Person should be Graduate in Engineering (or equivalent) with minimum 5 years independent experience in data acquisition, Processing and interpretation.
- The person is to report to WTI for any abnormality in the operation.

5.0 OTHER CREW MEMBERS:

- Personnel deployed by the Contractor other than the mentioned above, in any operation should have minimum 5 years of experience in their relevant field.

6.0 OTHER CONDITIONS

- The Contractor should agree to maintain the equipment in good operational condition throughout the contract period. The Contractor shall provide and maintain sufficient quantities of spare parts, tools, consumables etc. that are necessary for maintenance and operation of the equipment at no extra cost to Operator.
- The Contractor must provide Surface Production Testing services confirming to good oil field practices comparable to international standards.
The Contractor shall supply any additional item as indicated as optional requirement at agreed rates, terms and conditions during the contract period.

The Contractor shall ensure that the equipment quoted is complete in all respect to carry out the operations specified in Tender documents. The Contractor shall also quote for any additional item which is not listed in the Tender document but is essential for operation.

7.0 **LIST OF PERSONNEL:**

The following table shows the summary of list of competent personnel to be deployed by the Contractor.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>Nos.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Well Test In-Charge (WTI)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Production Testing Supervisor</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Well Test Operator</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Well Test Data Processing and Interpretation Specialist</td>
<td>1</td>
</tr>
</tbody>
</table>
### PRICE BID FORMAT/PRICE SCHEDULE

<table>
<thead>
<tr>
<th>Sl no</th>
<th>Particulars/Activity</th>
<th>Units</th>
<th>Qty</th>
<th>Rate</th>
<th>Total Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mobilization Charge for Surface Production Testing Service Equipment / Tools</td>
<td>Lumpsum</td>
<td>1</td>
<td>a</td>
<td>A = a x 1</td>
</tr>
<tr>
<td>2</td>
<td>De-mobilization Charge for Surface Production Testing Service Equipment / Tools</td>
<td>Lumpsum</td>
<td>1</td>
<td>b</td>
<td>B = b x 1</td>
</tr>
<tr>
<td>3</td>
<td>Mobilization / De-Mobilization Charge for Surface Testing Service Personnel (Initial/interim)</td>
<td>Times</td>
<td>30</td>
<td>c</td>
<td>C = c x 30</td>
</tr>
<tr>
<td>4</td>
<td>ODR Charge for Surface Testing Service Equipment / Tools</td>
<td>Per Day</td>
<td>550</td>
<td>d</td>
<td>D = d x 550</td>
</tr>
<tr>
<td>5</td>
<td>SDR Charge for Surface Testing Service Equipment / Tools</td>
<td>Per Day</td>
<td>545</td>
<td>e</td>
<td>E = e x 545</td>
</tr>
<tr>
<td>6</td>
<td>Interlocation Movement charges for Surface Testing Service Equipment / Tools</td>
<td>Times</td>
<td>29</td>
<td>f</td>
<td>F = f x 29</td>
</tr>
<tr>
<td>7</td>
<td>ODR/SDR Charge for Surface Production Testing Service Personnel</td>
<td>Per Day</td>
<td>550</td>
<td>g</td>
<td>G = g x 550</td>
</tr>
<tr>
<td>8</td>
<td>Land Cost for Flare pit (20 m X 20m) &amp; approach road to flare pit (90 m X 3m)</td>
<td>Lumpsum</td>
<td>30</td>
<td>h</td>
<td>H = h x 30</td>
</tr>
</tbody>
</table>

The Total Bid Price (T) for evaluation purpose will be calculated as follows:

\[ T = A + B + C + D + E + F + G + H \]

************************************************************************End of EOI************************************************************************