**Oil India Limited**
**(A Govt. of India Enterprise)**
**P.O. DULIAJAN, DIST. DIBRUGARH,**
**ASSAM, INDIA, PIN-786 602**

**PROJECTS DEPARTMENT**
**TEL: (91) 374-2807207**
**E-mail: *prodproj@oilindia.in***
**Website: www.oil-india.com**

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## FORWARDING LETTER

**M/s**_____

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**Sub: IFB No. CPI4540P18 for Hiring of Services for Engineering Procurement Construction Management Consultancy (EPCM) for creation of Surface Production Facilities (GGS and OCS) at Nadua & East Khagorijan, Dibrugarh, Assam**

Dear Sirs,

1.0 OIL INDIA LIMITED (OIL), a "Navaratna" Category, Government of India Enterprise, is a premier oil Company engaged in exploration, production and transportation of crude oil & natural gas with its Headquarters at Duliajan, Assam. Duliajan is well connected by Air with nearest Airport being at Dibrugarh, 45 km away.

2.0 In connection with its operations, OIL invites Competitive Bids from competent and experienced **indigenous/domestic bidders** through OIL's e-procurement site for **Hiring of Services for Engineering Procurement Construction Management Consultancy (EPCM) for creation of Surface Production Facilities (GGS and OCS) at Nadua & East Khagorijan, Dibrugarh, Assam.** One complete set of Bid Document covering OIL's IFB for hiring of above services is uploaded in OIL's e-procurement portal. You are invited to submit your most competitive bid on or before the scheduled bid closing date and time through OIL's e-procurement portal. For your ready reference, few salient points of the IFB (covered in detail in the Bid Document) are highlighted below:

| | | | |
|---|---|---|---|
| (i) | IFB No. /E-Tender No. | : | **CPI4540P18** |
| (ii) | Type of Bidding | : | Online-Single Stage-Two Bid System |
| (iii) | Tender Fee | : | INR 2,000.00 |
| (iv) | Period of Sale | : | **27/04/2017 to 01/06/2017** |
| (v) | Last date for receipt of pre-bid queries | : | **10/05/2017 upto 15:30 Hrs (IST)** |
| (vi) | Pre-bid Conference date | : | **12/05/2017** |
| (vii) | Venue of Pre-bid Conference | : | **Kolkata – Exact venue in Kolkata will be intimated later.** |
| (viii) | Bid Closing Date & Time | : | **08/06/2017 (11:00HRS IST)** |
| (ix) | Technical Bid Opening Date & Time | : | **08/06/2017 ( 14:00 HRS IST)** |
| (x) | Price Bid Opening Date & Time | : | Will be intimated only to the eligible/qualified Bidders nearer the time. |
| (xi) | Bid Submission Mode | : | Bids must be uploaded online in OIL's E-procurement portal |
| (xii) | Bid Opening Place | : | Office of GM-Contracts<br>Contract Department,<br>Oil India Limited, Duliajan -786602,<br>Assam, India. |
| (xiii) | Bid Validity | : | 120 days from date of Bid Closing |
| (xiv) | Mobilization Time | : | Kick-off Meeting should be held within 07 days from date of issue of LOA |
| (xv) | Bid Security Amount | : | Rs. 38, 75,000 |
| (xvi) | Bid Security Validity | : | 150 days from date of closing of bid |
| (xvii) | Original Bid Security to be submitted | : | DGM (Projects-C&P)<br>Projects Department<br>OIL INDIA LIMITED<br>DULIAJAN - 786 602<br>ASSAM, INDIA |
| (xviii) | Amount of Performance Security | : | For successful completion & covering the defect liability period - 10% of the annualized Contract value |
| (xix) | Validity of Performance Security | : | For successful completion & to cover the defect liability period: Up to 90 days beyond the defect liability period |

| | | | |
|---|---|---|---|
| (xx) | Defect Liability Period | : | One year from date of completion of Contract. |
| (xxi) | Duration of the Contract | : | 28 months from the date of LOA to EPCM.<br><br>Note: If PGTR (in case of any one of the plant or both) gets extended due to non-fulfillment of process output requirement as defined in the tender (SOW & TOR) then the contract period will get extended by the duration the PGTR is getting extended without any enhancement in the contract value. |
| (xxii) | Quantum of Liquidated Damage for Default in Timely Mobilization | : | Refer clause No. 17.0 of General Conditions of Contract |
| (xxiii) | Quantum of Liquidated Damage for default in timely completion of project | : | Refer clause No. 18.0 of General Conditions of Contract |
| (xxiv) | Integrity Pact | : | Must be digitally signed & uploaded along with the Techno-commercial Bid. |
| (xxv) | Bids to be addressed to | : | DGM (Projects-C&P)<br>Projects Department<br>OIL INDIA LIMITED<br>DULIAJAN - 786 602<br>ASSAM, INDIA |

3.0 **Integrity Pact :** The Integrity Pact must be uploaded in OIL's E-procurement portal along with the Technical Bid digitally signed by the same signatory who signed the Bid i.e. who is duly authorized to sign the Bid. If any bidder refuses to sign Integrity Pact or declined to submit the Integrity Pact, their bid shall be rejected straightway. 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 signs the Bid.

4.0 **GUIDELINES FOR PARTICIPATING IN OIL'S E-PROCUREMENT:**

4.1 To participate in OIL's E-procurement tender, bidders should have a legally valid digital certificate **of Class 3 with Organizations Name** and **Encryption certificate** as per Indian IT Act from the licensed Certifying Authorities operating under the Root Certifying Authority of India (RCAI), Controller of Certifying Authorities (CCA) of India (http://www.cca.gov.in). **Digital Signature Certificates having "Organization Name" field as "Personal" are not acceptable**.

4.2 Bidders must have a valid User ID to access OIL's e-Procurement site for submission of bid. Vendors having User ID & password can purchase bid documents **on-line through OIL's electronic Payment Gateway**. New vendor shall obtain User ID & password through online vendor registration system in e-portal and can purchase bid documents subsequently in the similar manner.

4.3 **EXEMPTION OF TENDER FEE:**

4.3.1 If the bidder is a Micro or Small Enterprise [MSEs] under the Micro, Small and Medium Enterprises Development Act, 2006 and is registered with District Industries Centers or Khadi and Village Industries Commission or Khadi and Village Industries Board or Coir Board or National Small Industries Corporation or Directorate of Handicrafts and Handloom or any other body specified by Ministry of Micro, Small and Medium Enterprises, then they are exempted from payment of tender fees for the items/services for which they are registered. Copy of valid Registration Certificate, must be enclosed along with the application for issuing tender documents and the Registration Certificate should clearly indicate the items/services for which bidder are registered [or they intend to quote against OIL's tenders] with any of the aforesaid agencies.

4.3.2 The Central Govt. Departments and Central Public Sector Undertakings will also be exempted from the payment of tender fee. Parties registered with DGS&D, having valid certificates will be exempted from payment of tender fee.

4.4 Parties, who do not have a User ID, can click on **Guest** login button in the E-portal to view the available open tenders. **The detailed guidelines are available in OIL's e-procurement site (Help Documentation).** For any clarification in this regard, bidders may contact E-Tender Support Cell at Duliajan at erp_mm@oilindia.in, Ph.: 0374- 2807178/4903.

5.0 **Pre-Bid Conference**:

5.1 A pre-Bid conference is planned to be held on **12/05/2017** at **Kolkata** to explain the requirements of Company in details to the interested prospective Bidders and to understand bidders' perspective including exchange of views/clarifications, if any, on the Scope of Work, Bid Rejection/Bid Evaluation Criteria and other terms & conditions of the Tender. The parties who purchase the bid documents shall be allowed to participate in the Pre-Bid conference. For details of the venue, bidders may contact DGM (PROJECTS - C&P), Phone: (91)374-2807207, E-mail: shantanukr_gogoi@oilindia.in.

5.2 At the most 2 (two) representatives from each prospective bidder shall be allowed to participate in the pre-bid conference. All costs for attending the pre-bid conference shall be to prospective bidders' account.

5.3 The prospective bidders shall submit their queries through E-mail / Fax / Courier addressed to DGM (PROJECTS - C&P), Assam prior to the date of pre-bid conference and such queries must reach OIL's office at Duliajan latest by **10/05/2017 upto 15:30 Hrs (IST)**. OIL shall provide clarifications to the queries in the pre-bid conference. OIL will not be responsible for non-receipt or late receipt of

any bidder's query in OIL's office.

## 6.0 IMPORTANT NOTES:

Bidders shall take note of the following important points while participating in OIL's e-procurement tender:

i) The bidders who are on Holiday/Negative list of OIL on due date of submission of bid/during the process of evaluation of the bids, the offers of such bidders shall not be considered for bid opening/evaluation/award. If the bidding documents were issued inadvertently/downloaded from website, the offers submitted by such bidders shall also not be considered for bid opening/evaluation/Award of Work.

ii) The bid along with all supporting documents must be submitted through OIL's E-procurement site only except the "Original Bid Security" which shall be submitted manually by the bidder in two copies in a sealed envelope super scribed with OIL's IFB No./E-Tender No., Bid Closing date and marked as "Original Bid Security" and addressed to DGM (Projects-C&P), Projects Department, Oil India Limited, Duliajan-786602, Assam(India):

Additionally, following documents to be submitted in hard form if specifically called for in the tender:

a) Original Bid Security
b) Printed catalogue and Literature, if called for in the tender.
c) Power of Attorney for signing the bid.
d) Any other document required to be submitted in original as per tender requirement.

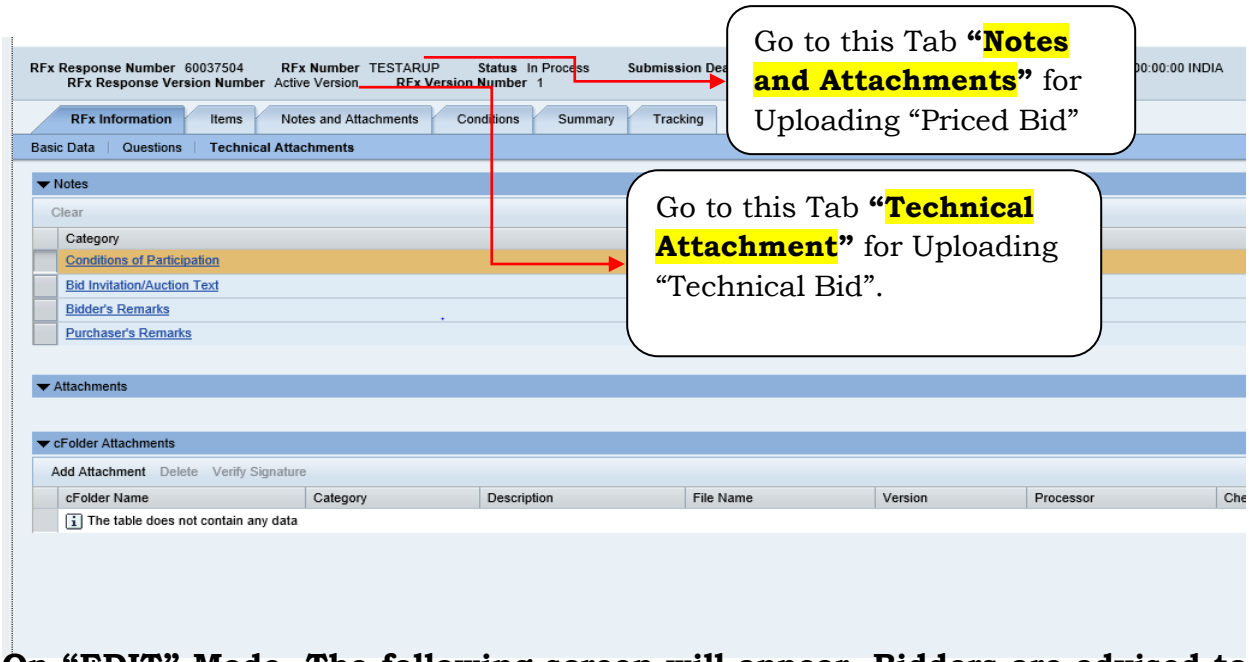
**The above documents including the Original bid security, must be received at the Office of DGM (Projects-C&P), Projects Department, OIL, Duliajan on or before 12.45 Hrs(IST) on the technical bid closing date failing which the bid shall be rejected**. A scanned copy of the Bid Security shall also be uploaded by the bidder along with their Technical Bid in OIL's E-procurement site.

iii) Bid should be submitted online in OIL's E-procurement site up to 11.00 AM (IST) (Server Time) on the date as mentioned and will be opened on the same day at 2.00 PM (IST) at the office of the GM-Contracts in presence of the authorized representatives of the bidders.

iv) If the digital signature used for signing is not of "Class -3" with Organizations name, the bid will be rejected.

v) The tender is invited under **SINGLE STAGE-TWO BID SYSTEM**. The bidders shall submit both the "TECHNICAL" and "PRICED" bids through electronic form in the OIL's e-Procurement portal within the Bid Closing Date and Time stipulated in the e-Tender portal. The Technical Bid should be submitted as per Scope of Work & Technical Specifications along with all technical documents related to the tender and uploaded in **"Technical Attachments" Tab only**. **Bidders to note that no price details should be uploaded in**

**"Technical Attachments" Tab Page. Details of prices as per Price Bid format/Priced bid to be uploaded under "Notes & Attachments" tab. A screen shot in this regard is shown below. Offer not complying with above submission procedure will be rejected as per Bid Evaluation Criteria mentioned in Clause 1.0 of (B) Commercial Evaluation Criteria.)**




**On "EDIT" Mode- The following screen will appear. Bidders are advised to upload "Technical Bid" and "Priced Bid" in the places as indicated above:**

**Note:**

* The "Technical Bid" shall contain all techno-commercial details **except the prices**.

** The "Priced bid" must contain the price schedule and the bidder's commercial terms and conditions, if any.For uploading Priced Bid, click on Add Atachment, a browser window will open, select the file from the PC and name the file under Description, Assigned to General Data and click on OK to digitally sign and upload the File. Please click on Save Button of the Response to Save the uploaded files.

6.0 OIL now looks forward to your active participation in the IFB.

Thanking you,

Thanking you,

Yours faithfully,
**OIL INDIA LIMITED**

**(S.K. Gogoi)**
**DGM (Projects-C&P)**
***For* RESIDENT CHIEF EXECUTIVE**

## PART - 1

## INSTRUCTIONS TO BIDDERS

**General:**

**1.0** Bidder shall bear all costs associated with the preparation and submission of bid. Oil India Limited, hereinafter referred to as Company, will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

i) The information given in the Bid Documents and in the plans and drawings forming part Thereof is merely intended as a general information without undertaking on the part of the Owner as to its accuracy and without obligation relative thereto upon the Owner. The bidders are expected to conduct their own surveys and investigations prior to Bidding.

ii) Before bidding, the Bidder shall undertake and shall be deemed before bidding to have undertaken a thorough study of the proposed work, the job site (s) involved, the site weather, sea and under water conditions, soil condition, condition of the terrain, the climatic conditions, the labour, power, water, material and equipment availability and transport and communications facilities, the availability and suitability of borrow areas if necessary, the availability of land for access and temporary offices and accommodation quarters, and all other factors, constraints and facilities necessary for the formation of the bid, supply of materials and the performance of the work.

iii) The vendor shall inspect and examine the site and its surroundings and shall satisfy himself before submitting his tender as to the nature of the ground present, physical conditions and all roads, approaches and lands which may be used temporarily otherwise in connection with the works, means of access to the site accommodation he may require and in general shall himself obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect his tender.

iv) **GENERAL BRIEF DESCRIPTION**

OIL INDIA LIMITED (OIL) a Government of India Enterprise, is a premier Oil & Gas Company engaged in Exploration, Production and Transportation of crude oil & natural gas with its Headquarters at Duliajan, Assam. The Company has operating interests across the country as well as in several foreign countries. The major Oil & Gas producing assets of the Company are located in Upper Assam Basin of North East India. The Operational area is spread over a radius of 60 km from headquarters at Duliajan. Duliajan is connected by Air with nearest Airport at Dibrugarh, 50 km away.

OIL proposes to construct two (02) number of Production facilities primarily for separation of Oil, Gas & Water and processing of non-associated gas in its producing field at Nadua and East Khagorijan. The installation will be constructed on **Modular design concept with emphasis on skid mounted pre-fabricated facilities minimizing civil construction work at site to the extent** possible as per functional specifications of various process packages. Instead of permanent civil buildings, containerized offices/structures will be preferred

Meeting with the above mentioned objective, OIL intends to hire an **EPCM (Engineering Procurement Construction Management Consultant)** for managing the project starting from preparation of FEED, carrying out detail engineering, conducting safety studies, soil testing and topographical surveys, preparation of multiple tender packages for procurement, installation and commissioning of various packages, preparation of tenders for carrying out site construction activities, project management, site supervision and conducting PGTR for the complete facilities. The engineering (basic &detail), procurement and construction management for the entire plant at both the locations will be the responsibility of the EPCM including PGTR.

v) **Detailed scope of work is enumerated in the document – SCOPE OF WORK & TERMS OF REFERENCE**.

vi) **SITE LOCATION & SITE Conditions**: Nadua & East Khagorijan Production fields of Oil India Limited near Dibrugarh, Assam.

**Typical Climatic Condition of the Region:**

| Month | Average rainfall (In cm) | Average high/ Average low (in °C) |
|---|---|---|
| January | 3.7 | 24°/ 11° |
| February | 5.4 | 25°/ 13° |
| March | 10.5 | 27°/ 17° |
| April | 19.2 | 28°/ 20° |
| May | 30.1 | 31°/ 24° |
| June | 32.7 | 33°/ 27° |

| | | |
|---|---|---|
| July | 38.1 | 34°/ 28° |
| August | 32.9 | 34°/ 28° |
| September | 27.9 | 33°/ 26° |
| October | 13.0 | 31°/ 22° |
| November | 3.6 | 28°/ 16° |
| December | 2.2 | 25°/ 12° |
| **AVERAGE** | **18.275** | **29.42°/ 20.33°** |

vii) **High Flood Level (HFL): 103.92 m** (Burhidihing River; Gauge taken at Khowang)

**viii) Ground Water Level:**

i. **Pre-monsoon: 0.67 m to 1.78 m below ground level**
ii. **Post-monsoon: 1.24 m to 2.80 m below ground level**

ix) **Location:**

i. **Nearest Airport: Mohanbari**
ii. **Nearest Railway Station: Dibrugarh**

x) SITE VISIT

- The bidder is advised to visit and examine the project site on its own, and its surroundings to obtain all site-related information and fully understand the circumstances that may be necessary to prepare a bid and enter into a contract.
- The Owner will not provide air fare, airport arrival and drop-off for company representatives and transportation to the site and back. Bidder will be required to cover the cost of their hotel accommodations and for their stay. For any such visit, the Owner should be informed at least one week in advance.

**LOCAL CONDITIONS**

- It will be imperative on the part of each bidder to acquaint himself with all local laws, conditions and factors which may have any effect or bearing on the execution of works and supplies under the scope of this tender. In their own interest, the tenderer is required to familiarise themselves with (but not limited to) the Indian Income Tax Act, Indian Companies Act, Indian Customs Act, Factories and Boiler Act, Contract Labour (regulation and abolition) Act, Arbitration Act, PF Act and other related Acts and Laws and Regulations of India with their latest

amendments as applicable. The Owner shall not entertain any clarification from the Tenderer(s) regarding such local conditions.

- It must be understood & agreed that above factors have been properly investigated and considered while submitting the offer. No claim for financial or any other adjustments to contract price or completion time on account of lack of clarity of such factors, shall be entertained.

**xi) SUBMISSION OF OFFER**

**TECHNICAL BID**

The Technical offer shall be complete in all respect with all Annexures/Proforma duly filled in. Offers will be evaluated on the basis of the data & details furnished by the bidders in the Annexures/ Proforma. Incomplete Annexures will make the offers incomplete and such offers are liable to be rejected. Data and details furnished in the Annexures of the offers shall be supported with required applicable certificates / documents. Uploaded bid documents should be clearly legible.

BIDDERS ARE ADVISED TO ENSURE THAT ALL THE QUALIFICATION DOCUMENTS ARE UPLOADED IN THE MANNER PRESCRIBED. OWNER RESERVES THE RIGHT TO EVALUATE THE SUBMITTED DOCUMENTS WITHOUT SEEKING ANY NEW DOCUMENTS OR CLARIFCATION ON THE SUBMITTED DOCUMENTS. BIDS WITH INCOMPLETE SUPPORTING QUALIFICATION DOCUMENTS ARE LIABLE TO BE REJECTED.

**xii) Personnel**

a) The proposed staffing and management including Curricula vitae of the key Experts/ personnel to be assigned for the project. The qualification of experts and support staff, their previous experience in GGS & OCS shall be submitted as per Curriculum Vitae (CV) format as **Proforma-IX**.
b) All construction supervision personnel proposed for deployment shall be having minimum engineering graduate degree and 5 years of experience in construction of GGS & OCS projects. In-Charge shall have 10 years of experience in gas compressor station, GGS, OCS, refinery, Petrochemical, gas filtration, Regasification projects.
c) The material management personnel proposed for deployment shall have relevant knowledge and experience of stores management i.e. storage, transportation, stacking, documentation for material receipt/issue and commercial taxes, maintaining stock register, consumption statement etc. Experience of working in SAP environment to execute the above shall be necessary.

d) The bidder shall provide Curriculum Vitae (CV) of all the key personnel proposed to work on the project. Each key person proposed should be employee of the bidder.
e) Details of offices in India and outside India to be submitted as **Proforma-X.**
f) The following supplementary information: a) Information regarding organization of the bidder; b) The proposed project staffing and management including a description of the project teams and how the teams will relate to each other and be supervised; c) Details on the proposed offices (location, team structure and logistic supports) with respect to the project's requirements; d) Work plans showing the schedule of tasks to be accomplished
g) Exceptions/deviations (Technical), if any, to be indicated only as per Performa.
h) Failure to furnish all information required as per the tender documents or submission of bid not substantially responsive to the tender documents, in every respect, may result in rejection of the bid.
i) Submission of the information and details shall be done strictly in the manner described.

## A. BID DOCUMENTS

**2.0** The services required, bidding procedures and contract terms are prescribed in the Bid Document. This Bid Document includes the following:

(a) A Forwarding Letter highlighting the following points:

(i) Company's IFB No. & Type
(ii) Bid closing date and time
(iii) Bid opening date and time
(iv) Bid submission Mode
(v) Bid opening place
(vi) Bid validity, Mobilisation time & Duration of contract
(vii) The amount of Bid Security with validity
(viii) The amount of Performance Guarantee with validity
(ix) Quantum of liquidated damages for default in timely mobilizations
(x) Duration of the Contract

(b) Instructions to Bidders, (Part-1)
(c) Bid Evaluation Criteria/Bid Rejection Criteria, (Part-2)
(d) General Conditions of Contract, (Part-3, Section-I)
(e) Terms of Reference/Scope of Work, (Part-3, Section-II)
(f) Schedule of Rates & Payment, (Part-3, Section-III)
(g) Special Conditions of the Contract, (Part-3, Section-IV)
(h) Statement of Non-Compliance, (Part-4, Proforma-I)
(i) Bid Form, (Part-4, Proforma-IIA)
(j) Performance Security Form, (Part-4, Proforma-IIB)
(k) Contract Form, (Part-4, Proforma-IIC)
(l) Bid Security Form, (Part-4, Proforma-IID)
(m) Proforma of Letter of Authority, (Part-4, Proforma III)
(n) Integrity Pact Proforma, (Part-4, Proforma IV)
(o) Parent Company Guarantee, (Part-4, Proforma V)
(p) Record of Bidders past relevant experience, (Part-4, Proforma VI)
(q) Authorisation for Attending Bid Opening, (Part-4, Proforma VII)
(r) Undertaking by Bidder, (Part 4, Proforma VIII)
(s) CURRICULUM VITAE OF BIDDER'S PERSONNEL (Part 4, Proforma IX)
(t) DETAILS OF OFFICES IN INDIA & OUTSIDE INDIA (Part 4, Proforma X)

2.1 The bidder is expected to examine all instructions, forms, terms and specifications in the Bid Documents. Failure to furnish all information

required in the Bid Documents or submission of a bid not substantially responsive to the Bid Documents in every respect will be at the Bidder's risk & responsibility and may result in the rejection of its bid.

**3.0 TRANSFERABILITY OF BID DOCUMENTS**:

3.1 Bid Documents are non-transferable. Bid can be submitted only in the name of the bidder in whose name the Bid Document has been issued.

3.2 Unsolicited bids will not be considered and will be rejected straightway.

**4.0 AMENDMENT OF BID DOCUMENTS**:

4.1 At any time prior to the deadline for submission of bids, the Company may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bid Documents through issuance of an Addendum.

4.2 The Addendum will be uploaded in OIL's E-Tender Portal in the "Technical RFx Response" under the tab "Amendments to Tender Documents". All prospective bidders to whom Company has issued the Bidding Documents shall also be intimated about the amendments through post/courier or by Fax or e-mail. The Company may, at its discretion, extend the deadline for bid submission, if the Bidders are expected to require additional time in which to take the Addendum into account in preparation of their bid or for any other reason. **Bidders shall also check from time to time the E-Tender portal ["Technical RFx Response" under the tab "Amendments to Tender Documents"] for any amendments to the bid documents before submission of their bids.**

**B. PREPARATION OF BIDS**

**5.0 LANGUAGE OF BIDS**: The bid as well as all correspondence and documents relating to the bid exchanged between the Bidder and the Company shall be in English language, except that any printed literature may be in another language provided it is accompanied by an official and notarised English translated version, which shall govern for the purpose of bid interpretation.

**6.0 DOCUMENTS COMPRISING THE BID**:

Bids are invited under Single Stage Two Bid System. The bid to be uploaded by the Bidder in OIL's E-Tender portal shall comprise of the following components:

**(A) TECHNICAL BID**

(i) Complete technical details of the services and equipment specifications with catalogue, etc.

(ii) Documentary evidence established in accordance with Clause 10.0.

(iii) Bid Security (scanned) in accordance with Clause 11.0 hereunder. Original Bid Security should be sent as per Clause No. 11.10 below.
(iv) Copy of Bid-Form without indicating prices in Proforma-IIA
(v) Statement of Non-compliance as per Proforma–I
(vi) Copy of Priced Bid ***without indicating prices*** (Part 3, Section III)
(vii) Integrity Pact digitally signed by OIL's competent personnel as Proforma IV, attached with the bid document to be digitally signed by the bidder.

**(B) PRICED BID**

Bidder shall quote their prices in the following Proforma available in OIL's E-procurement portal in the **"Notes & Attachments" Tab**:
(i) Price-Bid Format as per Part 3, Section III
(ii) Bid Form as per Proforma-IIA

The Priced Bid shall contain the prices along with the currency quoted and any other commercial information pertaining to the service offered.

**7.0 BID FORM**:

The bidder shall complete the Bid Form and the appropriate Price Schedule furnished in their Bid.

**8.0 BID PRICE:**

8.1 Prices must be quoted by the Bidders online as per the price bid format available in OIL's E- Tender Portal in "Notes & Attachment" Tab. Unit prices must be quoted by the bidders, both in words and in figures.

8.2 Prices quoted by the successful bidder must remain firm during its performance of the Contract and is not subject to variation on any account.

8.3 All duties and taxes (excluding Service Tax) including Corporate Income Tax, Personal Tax, Assam Entry Tax etc. and other Cess/levies payable by the successful bidder under the Contract for which this Bid Document is being issued, shall be included in the rates, prices and total Bid Price submitted by the bidder, and the evaluation and comparison of bids shall be made accordingly. For example, personal taxes and/or any corporate taxes arising out of the profits on the contract as per rules of the country shall be borne by the bidder.

**9.0 CURRENCIES OF BID AND PAYMENT**: INR (Indian Rupees) only.

## 10.0 DOCUMENTS ESTABLISHING BIDDER'S ELIGIBILITY AND QUALIFICATIONS:

10.1 These are listed in **BID REJECTION CRITERIA (BRC) / BID EVALUATION CRITERIA (BEC), PART-2** of the Bid document.

## 11.0 BID SECURITY:

11.1 The Bid Security is required to protect the Company against the risk of Bidder's conduct, which would warrant forfeiture of the Bid Security, pursuant to sub-clause 11.9.

11.2 All the bids must be accompanied by Bid Security in Original for the amount as mentioned in the "Forwarding Letter" or an equivalent amount in other freely convertible currency and shall be in any one of the following forms:

(a) A Bank Guarantee or irrevocable Letter of Credit in the prescribed format vide **Proforma-IID** or in another form acceptable to the Company: Bank Guarantee/LC issued from any of the following Banks only will be accepted:

i) Any Nationalised / scheduled Bank in India or
ii) Any Indian branch of a Foreign Bank or
iii) Any reputed foreign Bank having correspondent Bank in India

The Bank Guarantee / LC shall be valid for 30 days beyond the validity of the bids asked for in the Bid Document.

Bank Guarantees issued by Banks in India should be on non-judicial stamp paper of requisite value, as per Indian Stamp Act, purchased in the name of the Banker.

(b) A Cashier's cheque or Demand Draft drawn on 'Oil India Limited' and payable at Duliajan, Assam.

11.3 **Bidders can submit Bid Security on-line through OIL's electronic Payment Gateway.**

11.4 Any bid not secured in accordance with **sub-clause 11.2** above shall be rejected by the Company as non-responsive.

11.5 The bidders shall extend the validity of the Bid Security suitably, if and when specifically advised by OIL, at the bidder's cost.

11.6 Unsuccessful Bidder's Bid Security will be discharged and/or returned within 30 days after finalization of IFB.

11.7 Successful Bidder's Bid Security will be discharged and/or returned upon Bidder's furnishing the Performance Security and signing of the contract. Successful bidder will however ensure validity of the Bid Security till such time the Performance Security in conformity with **Clause 28.0** below is furnished.

11.8 Bid Security shall not accrue any interest during its period of validity or extended validity.

11.9 The Bid Security may be forfeited:

i) If any bidder withdraws their Bid during the period of bid validity.

ii) If any bidder alters their Bid during the period of bid validity or if the bidder increases the price during the period of bid validity.

iii) If the bidder does not accept the LOA issued by Company within the validity of the bid.

iv) If the bid is accepted by OIL, and work is awarded but the contractor does not furnish the Performance Security.

11.10 In case any bidder withdraws their bid during the period of bid validity, Bid Security will be forfeited and the party shall be debarred for a period of 2(two) years.

11.11 **The scanned copy of the original Bid Security in the form of either Bank Guarantee or LC or Cashier Cheque or Bank Draft must be uploaded by bidder along with the Technical bid in the "Technical RFx Response" of OIL's E-portal**. The original Bid Security shall be submitted by bidder to the office of Head-Contracts, Oil India Ltd., Duliajan-786602(Assam), India in a sealed envelope which must reach Head-Contract's office on or before 12.45 Hrs (IST) on the Bid Closing date failing which the bid shall be rejected.

**12.0 EXEMPTION FROM SUBMISSION OF BID SECURITY:**

12.1 Central Govt. offices, Central Public Sector undertakings and firms registered with NSIC /Directorate of Industries are exempted from submitting Bid Security. However the firms registered with NSIC/ Directorate of Industries shall have to submit evidence that they have a current and valid registration for the service they intend to bid including the prescribed monetary limit.

**13.0 PERIOD OF VALIDITY OF BIDS**:

13.1 Bids shall remain **valid for 120** days from the date of closing of bid prescribed by the Company. Bids of shorter validity will be rejected as being non-responsive. If nothing is mentioned by the bidder in their bid about the bid validity, it will be presumed that the bid is valid for 180 days from Bid Closing Date.

13.2 In exceptional circumstances, the Company may solicit the Bidder's consent to an extension of the period of validity. The request and the response thereto shall be made in writing through Fax or e-mail. The Bid Security provided under Para 11.0 above shall also be suitably extended. A Bidder may refuse the request without forfeiting its Bid Security. A Bidder granting the request will neither be required nor permitted to modify their Bid.

**14.0 SIGNING OF BID**:

14.1 Bids are to be submitted online through OIL's E-procurement portal with digital signature. The bid and all attached documents should be digitally signed by the bidder using "Class 3" digital certificates with Organizations Name [e-commerce application (Certificate with personal verification and Organisation Name)] as per Indian IT Act 2000 obtained from the licensed Certifying Authorities operating under the Root Certifying Authority of India (RCAI), Controller of Certifying Authorities (CCA) of India before bid is uploaded.

The bid including all uploaded documents shall be digitally signed by duly authorized representative of the bidder holding a Power of Attorney to bind the Bidder to the contract.

If any modifications are made to a document after attaching digital signature, the digital signature shall again be attached to such documents before uploading the same. The Power of Attorney in original shall be submitted by bidder as mentioned in Para 15.1 below.

The authenticity of above digital signature shall be verified through authorized CA after bid opening and in case the digital signature is not of "Class-3" with organization name, the bid will be rejected.

Bidder is responsible for ensuring the validity of digital signature and its proper usage by their employees.

14.2 The original and all copies of the bid shall be typed or written in indelible inks. Since bids are to be submitted ONLINE with digital signature, manual signature is NOT relevant. The letter of authorisation (as per

**Proforma-III**) shall be indicated by written Power of Attorney accompanying the Bid.

14.3 Any person signing the Bid or any other document in respect of this Bidding Document or other relevant documents on behalf of the Bidder without disclosing his authority to do so shall be deemed to have the authority to bind the Bidder. If it is discovered at any time that the person so signing has no authority to do so, the Company (OIL) may, without prejudice to any other right or remedy, cancel his Bid or Contract and hold the Bidder liable to the Company (OIL) for all costs and damages arising from the cancellation of the Bid or Contract including any loss which the Company (OIL) may sustain on account thereof.

14.4 Any physical documents submitted by bidders shall contain no interlineations, white fluid erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such correction shall be initialled by the person or persons who has/have digitally signed the Bid.

14.5 Any Bid, which is incomplete, ambiguous, or not in compliance with the Bidding process will be rejected.

## C. BID SUBMISSION

## 15.0 SUBMISSION OF BIDS

15.1 The tender is processed to indigenous parties under single stage - Two bid system. Bidder shall submit the Technical bid and Priced bid along with all the Annexures and Proforma (wherever applicable) and copies of documents in electronic form through OIL's e-procurement portal within the Bid Closing Date & Time stipulated in the e-tender. For submission of Bids online at OIL's E-Tender Portal, detailed instructions is available in **"HELP DOCUMENTATION"** available in OIL's E-Tender Portal. Guidelines for bid submission are also provided in the "Forwarding Letter". The Technical Bid is to be submitted as per Terms of Reference/Technical Specifications of the bid document and Priced Bid as per the Price Schedule. The Technical Bid should be uploaded in the "Technical RFx Response" under "Techno-Commercial Bid" Tab Page only. Prices to be quoted as per Part3, Section III should be uploaded as Attachment just below the "Tendering Text" in the attachment link under "Techno-Commercial Bid" Tab under General Data in the e-portal. **No price should be given in the "Technical RFx Response", otherwise bid shall be rejected.** The priced bid should not be submitted in physical form which shall not be considered.

However, the following documents in two sets should necessarily be submitted in physical form in sealed envelope superscribing the "IFB

No., Brief Description of services and Bid Closing/Opening date & Time along with the bidder's name and should be submitted to Head-Contracts, Oil India Ltd., Duliajan-786602(Assam) on or before 12.45 Hrs(IST) on the bid closing date indicated in the IFB :

i) The Original Bid Security along with 2(two) copies
ii) Power of Attorney for signing of the bid digitally
iii) Any other document required to be submitted in original as per bid document requirement.
iv) Printed catalogue and literature if called for in the bid document.

Documents sent through E-mail/Fax/Telex/Telegraphic/Telephonic will not be considered.

15.2 All the conditions of the contract to be made with the successful bidder are given in various Sections of the Bid Document. Bidders are requested to state their non-compliance to each clause as per Proforma-I of the bid document and the same should be uploaded along with the Technical Bid.

15.3 Timely delivery of the documents in physical form as stated in Para 15.1 above is the responsibility of the bidder. Bidders should send the same through Registered Post or by Courier Services or by hand delivery to the Officer in Charge of the particular tender before the Bid Closing Date and Time. Company shall not be responsible for any postal delay/transit loss.

15.4 Bids received through the e-procurement portal shall only be accepted. Bids received in any other form shall not be accepted.

**16.0 <u>DEADLINE FOR SUBMISSION OF BIDS</u>**:

16.1 Bids should be submitted on-line as per the online tender submission deadline. Bidders will not be permitted by System to make any changes in their bid/quote after the bid has been submitted by the bidder. Bidder may however request Head-Contracts, Oil India Ltd., Duliajan for returning their bids/quote before the original bid closing date and time for resubmission. But no such request would be entertained once the submission deadline has reached or bids are opened.

16.2 No bid can be submitted after the submission dead line is reached. The system time displayed on the e-procurement web page shall decide the submission dead line.

16.3 The documents in physical form as stated in Para 15.1 must be received by Company at the address specified in the "Forwarding Letter" on or before 12.45 Hrs(IST) on the Bid Closing Date mentioned in the

"Forwarding Letter". Timely delivery of the same at the address mentioned in the Forwarding Letter is the responsibility of the Bidders.

**17.0 LATE BIDS**: Bidders are advised in their own interest to ensure that their bids are uploaded in system before the closing date and time of the bid. The documents in physical form mainly the Original Bid Security if received by the Company after the deadline for submission prescribed by the Company shall be rejected and shall be returned to the Bidders in unopened condition immediately.

**18.0 MODIFICATION AND WITHDRAWAL OF BIDS**:

18.1 The Bidder after submission of Bid may modify or withdraw its Bid by written notice prior to Bid Closing Date & Time.

18.2 The Bidder's modification or withdrawal notice may also be sent by fax/e-mail but followed by a signed confirmation copy, postmarked not later than the deadline for submission of Bids.

18.3 No Bid can be modified or withdrawn subsequent to the deadline for submission of Bids.

18.4 Once a withdrawal letter is received from any bidder, the offer will be treated as withdrawn and no further claim/correspondences will be entertained in this regard.

18.5 No Bid can be withdrawn in the interval between the deadline for submission of Bids and the expiry of the period of Bid Validity specified by the Bidder on the Bid Form. Withdrawal of a Bid during this interval shall result in the Bidder's forfeiture of its Bid Security and bidder shall also be debarred from participation in future tenders of OIL.

**19.0 EXTENSION OF BID SUBMISSION DATE:**

Normally no request for extension of Bid Closing Date & Time will be entertained. However, OIL at its discretion, may extend the Bid Closing Date and/or Time due to any reasons. In case of receipt of only one Bid on the Bid Closing Date and Time, OIL may extend the Bid Closing / Opening Date by 2(two) weeks. However, the bidder whose bid has been received within the bid closing date and time, will not be allowed to revise their Bid/prices. Withdrawal of such Bid is also not permitted.

**20.0 BID OPENING AND EVALUATION:**

20.1 Company will open the Technical Bids, including submission made pursuant to clause 18.0, in presence of Bidder's representatives who choose to attend at the date, time and place mentioned in the Forwarding Letter. However, an authorisation letter (as per **Proforma-**

**VII**) from the Bidder must be produced by the Bidder's representative at the time of Bid Opening. Unless this Letter is presented, the representative will not be allowed to attend the Bid Opening. The Bidder's representatives who are allowed to attend the Bid Opening shall sign a register evidencing their attendance. Only one representative against each Bid will be allowed to attend. In technical bid opening, only "Technical RFx Response" will be opened. Bidders therefore should ensure that technical bid is uploaded in the "Technical RFx Response" Tab Page only in the E-portal.

20.2 In case of any unscheduled holiday or Bandh on the Bid Opening Date, the Bids will be opened on the next full working day. Accordingly, Bid Closing Date / time will get extended up to the next working day and time.

20.3 Bid for which an acceptable notice of withdrawal has been received pursuant to clause 18.0 shall not be opened. Company will examine bids to determine whether they are complete, whether requisite Bid Securities have been furnished, whether documents have been digitally signed and whether the bids are generally in order.

20.4 At bid opening, Company will announce the Bidder's names, written notifications of bid modifications or withdrawal, if any, the presence of requisite Bid Security, and such other details as the Company may consider appropriate.

20.5 Company shall prepare, for its own records, minutes of bid opening including the information disclosed to those present in accordance with the sub-clause 20.3.

20.6 Normally no clarifications shall be sought from the Bidders. However, for assisting in the evaluation of the bids especially on the issues where the Bidder confirms compliance in the evaluation and contradiction exists on the same issues due to lack of required supporting documents in the Bid (i.e. document is deficient or missing), or due to some statement at other place of the Bid (i.e. reconfirmation of confirmation) or vise versa, clarifications may be sought by OIL. In all the above situations, the Bidder will not be allowed to change the basic structure of the Bid already submitted by them and no change in the price or substance of the Bid shall be sought, offered or permitted.

20.7 Prior to the detailed evaluation, Company will determine the substantial responsiveness of each bid to the requirement of the Bid Documents. For purpose of these paragraphs, a substantially responsive bid is one, which conforms to all the terms and conditions of the Bid Document

without material deviations or reservation. A material deviation or reservation is one which affects in any way substantial way the scope, quality, or performance of work, or which limits in any substantial way, in-consistent way with the Bid Documents, the Company's right or the bidder's obligations under the contract, and the rectification of which deviation or reservation would affect unfairly the competitive position of other bidders presenting substantial responsive bids. The Company's determination of Bid's responsiveness is to be based on the contents of the Bid itself without recourse to extrinsic evidence.

20.8 A Bid determined as not substantially responsive will be rejected by the Company and may not subsequently be made responsive by the Bidder by correction of the non-conformity.

20.9 The Company may waive minor informality or nonconformity or irregularity in a Bid, which does not constitute a material deviation, provided such waiver, does not prejudice or affect the relative ranking of any Bidder.

**21.0 OPENING OF PRICED BIDS:**

21.1 Company will open the Priced Bids of the technically qualified Bidders on a specific date in presence of representatives of the qualified bidders. The technically qualified Bidders will be intimated about the Priced Bid Opening Date & Time in advance. In case of any unscheduled holiday or Bandh on the Priced Bid Opening Date, the Bids will be opened on the next working day.

21.2 The Priced bids of the unsuccessful bidders which remain unopened with OIL, may be returned to the concerned bidders on request only after receipt of Performance Security from the successful bidders after issue of Letter of Award (LOA) by OIL.

21.3 The Company will examine the Price quoted by Bidders to determine whether they are complete, any computational errors have been made, the documents have been properly signed, and the bids are generally in order.

21.4 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price (that is obtained by multiplying the unit price and quantity) the unit price shall prevail and the total price shall be corrected accordingly. If there is a discrepancy between words, and figures, the amount in words will prevail. If any Bidder does not accept the correction of the errors, their Bid will be rejected.

**22.0 EVALUATION AND COMPARISON OF BIDS:**

The Company will evaluate and compare the bids as per **BID REJECTION CRITERIA (BRC) / BID EVALUATION CRITERIA (BEC), PART-2** of the Bid Documents.

23.1 **DISCOUNTS / REBATES**:

Unconditional discounts/rebates, if any, given in the bid will be considered for evaluation.

23.2 Post bid or conditional discounts/rebates offered by any bidder shall not be considered for evaluation of bids. However, if the lowest bidder happens to be the final acceptable bidder for award of contract, and if they have offered any discounts/rebates, the contract shall be awarded after taking into account such discounts/rebates.

**24.0 CONTACTING THE COMPANY**:

24.1 Except as otherwise provided in **Clause 20.0** above, no Bidder shall contact Company on any matter relating to its bid, from the time of the bid opening to the time the Contract is awarded except as required by Company vide **sub-clause 20.6.**

24.2 An effort by a Bidder to influence the Company in the Company's bid evaluation, bid comparison or Contract award decisions may result in the rejection of their bid.

**D. AWARD OF CONTRACT**

**25.0 AWARD CRITERIA:**

The Company will award the Contract to the successful Bidder whose bid has been determined to be substantially responsive and has been determined as the lowest evaluated bid, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

**26.0 COMPANY'S RIGHT TO ACCEPT OR REJECT ANY BID:**

Company reserves the right to accept or reject any or all bids and to annul the bidding process and reject all bids, at any time prior to award of contract, without thereby incurring any liability to the affected bidder, or bidders or any obligation to inform the affected bidder of the grounds for Company's action.

**27.0 NOTIFICATION OF AWARD**:

27.1 Prior to the expiry of the period of bid validity or extended validity, Company will notify the successful Bidder in writing by registered letter or by fax or E-mail (to be confirmed in writing by registered / couriered letter) that its Bid has been accepted.

27.2 The notification of award will constitute the formation of the Contract.

27.3 Upon the successful Bidder's furnishing of Performance Security pursuant to **Clause 28.0** below, the Company will promptly notify each un-successful Bidder and will discharge their Bid Security, pursuant to **Clause 11.0** hereinabove.

**28.0 PERFORMANCE SECURITY**:

28.1 Within 2(two) weeks of receipt of notification of award from the Company, the successful Bidder shall furnish to Company the Performance Security for an amount specified in the Forwarding Letter (and Letter of Award (LOA) issued by Company to Contractor awarding the contract) as per **Proforma-IIB** or in any other format acceptable to the Company and must be in the form of Bank Guarantee (BG) or an irrevocable Letter of Credit (L/C) from any of the following Banks:

i) Any Nationalised / Scheduled Bank in India OR
ii) Any Indian branch of a Foreign Bank OR
iii) Any reputed foreign Bank having correspondent Bank in India

The Performance Security shall be denominated in the currency of the contract or in equivalent US Dollars converted at the B.C. Selling rate of State Bank of India on the date of issue of LOA (Letter of Award). Bank Guarantees issued by Banks in India should be on non-judicial stamp paper of requisite value, as per Indian Stamp Act, purchased in the name of the Banker.

28.2 The Performance Security specified above must be valid for 3(three) months beyond the contract period. The Performance Security will be discharged by Company not later than 30 days following its expiry. In the event of any extension of the Contract period, Bank Guarantee should be extended by Contractor by the period equivalent to the extended period.

28.3 The Performance Security shall be payable to Company as compensation for any loss resulting from Contractor’s failure to fulfil its obligations under the Contract.

28.4 The Performance Security will not accrue any interest during its period of validity or extended validity.

28.5 Failure of the successful Bidder to comply with the requirements of **clause 28.0 and/or 29.0** shall constitute sufficient grounds for annulment of the award and forfeiture of the Bid Security or

Performance Security. In such an eventuality, the party shall be debarred for a period of 2(two) years from the date of default.

**29.0 SIGNING OF CONTRACT**:

29.1 At the same time as the Company notifies the successful Bidder that its Bid has been accepted, the Company will either call the successful Bidder for signing of the agreement or send the Contract Form provided in the Bid Documents, along with the General Conditions of Contract, Technical Specifications, Schedule of Rates incorporating all agreements agreed between the two parties.

29.2 Within 30 days of issue of LOA, the successful Bidder shall sign and date the contract and return it to the Company. Till the contract is signed, the LOA issued to the successful bidder shall remain binding amongst the two parties.

29.3 In the event of failure on the part of the successful Bidder to sign the contract within the period specified above or any other time period specified by Company, OIL reserves the right to terminate the LOA issued to the successful Bidder and invoke the Bid Security or the Performance Security if submitted by the successful Bidder. The party shall also be debarred for a period of 2(two) years from the date of default.

**30.0 FURNISHING FRAUDULENT INFORMATION/DOCUMENTS :**

If it is found that a bidder/contractor has furnished fraudulent information / documents, the Bid Security/Performance Security shall be forfeited and the party shall be debarred for a period of 3(three) years from the date of detection of such fraudulent act besides the legal action.

**31.0 MOBILISATION ADVANCE PAYMENT**:

31.1 Request for advance payment shall not be normally considered. However, depending on the merit and at the discretion of the Company, advance against mobilisation charge may be given at an interest rate of 1% above the prevailing Bank rate (CC rate) of SBI from the date of payment of the advance till recovery/refund.

31.2 Advance payment agreed to by the Company shall be paid only against submission of an acceptable bank guarantee whose value should be equivalent to the amount of advance plus the amount of interest covering the period of advance. Bank guarantee shall be valid for 2 months beyond completion of mobilisation and the same may be invoked in the event of Contractor's failure to mobilise as per agreement.

31.3 In the event of any extension to the mobilisation period, Contractor shall have to enhance the value of the bank guarantee to cover the interest for the extended period and also to extend the validity of bank guarantee accordingly.

**32.0 INTEGRITY PACT:**

32.1 OIL shall be entering into an Integrity Pact with the Bidders as per format enclosed vide **Proforma IV** of the Bid Document. The Integrity Pact has been duly signed digitally by OIL's competent signatory and uploaded in the OIL's e-portal. The Integrity Pact shall be returned by the bidder (along with the technical Bid) duly signed by the same signatory who signed the Bid i.e. who is duly authorized to sign the Bid. Uploading the Integrity Pact in the OIL's E-portal with digital signature will be construed that all pages of the Integrity Pact has been signed by the bidder's authorized signatory who has signed the bid. If any bidder refuses to sign Integrity Pact or declined to submit the Integrity Pact, their bid shall be rejected straightway

32.2 OIL has appointed Shri Rajiv Mathur, IPS(Retd) and Shri Satyananda Mishra, IAS(Retd.) as Independent Monitors(IEM) for a period of 3(three) years to oversee implementation of Integrity Pact in OIL. Bidders may contact the Independent External Monitors for any matter relating to the IFB at the following addresses:

a. Shri Rajiv Mathur, IPS(Retd), Former Director, IB, Govt. of India;
E-mail: rajivmathur23@gmail.com

b. Shri Satyananda Mishra, IAS(Retd.),Former Chief Information Commissioner of India & Ex-Secretary, DOPT, Govt. of India
E-mail:satyanandamishra@hotmail.com

**33.0 LOCAL CONDITIONS:**

It is imperative for each Bidder to be fully informed themselves of all Indian as well as local conditions, factors and legislation which may have any effect on the execution of the work covered under the Bidding Document. The bidders shall be deemed, prior to submitting their bids to have satisfied themselves of all the aspects covering the nature of the work as stipulated in the Bidding Document and obtain for themselves all necessary information as to the risks, contingencies and all other circumstances, which may influence or affect the various obligations under the Contract.

No request will be considered for clarifications from the Company (OIL) regarding such conditions, factors and legislation. It is understood and agreed that such conditions, factors and legislation have been properly investigated and considered by the Bidders while submitting the Bids. Failure to do so shall not relieve the Bidders from responsibility to estimate properly the cost of performing the work within the provided timeframe. Company (OIL) will assume no responsibility for any understandings or representations concerning conditions made by any of their officers prior to award of the Contract. Company (OIL) shall not permit any Changes to the time schedule of the Contract or any financial adjustments arising from the Bidder's lack of knowledge and its effect on the cost of execution of the Contract.

**34.0 SPECIFICATIONS:**

Before submission of Bids, Bidders are requested to make themselves fully conversant with all Conditions of the Bid Document and other relevant information related to the works/services to be executed under the contract.

**35.0 UNDERTAKING BY BIDDER:**

The bidder shall fill and submit the digitally signed **Proforma VIII.**

***END OF PART - 1***

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## PART-2

## BID REJECTION & BID EVALUATION CRITERIA:

### I. BID REJECTION CRITERIA (BRC):

The bid shall conform generally to the specifications and terms and conditions given in this bid document. Bids shall be rejected in case the services offered do not conform to required parameters stipulated in the technical specifications. Notwithstanding the general conformity of the bids to the stipulated specifications, the following mandatory requirements will have to be particularly met by the Bidders without which the same will be considered as non-responsive and rejected. All the documents related to BRC must be submitted along with the Techno-Commercial Bid.

### A. TECHNICAL

The Bidder must meet all the following requirements:-

1.0 The bidders must be in the business of providing as single point responsibility Engineering Procurement Construction Management (EPCM) services for creation of similar plants such as Group Gathering Station (GGS) or Gas Compressor Station Station (GCS) or Oil Collecting Station (OCS) or Storage tank-farms with process facilities or Crude Oil Refinery or Petrochemical Processing Plants or Natural Gas Processing Plants involving Front End Engineering Design (FEED); Detail Engineering; Preparation of Engineering Bid Package; Preparing of RFP (request for proposal) for procurement of various packages and site construction, Material & Procurement Management; Inspection & Expediting services, Project Management including selection, procurement, integration , Installation and Commissioning jobs, Site supervision and Construction management in process facility projects in Crude Oil & Natural Gas industry or Petrochemical Industry or Petroleum Refining Industry sector during last 7 (seven) years prior to the bid closing date.

1.1 Experience of having successfully executed one similar EPCM job as mentioned above in Para 1.0 of value not less than **Rs. 16.26 Crore** by the bidders in the last 7 (seven) years as on the original Bid closing date of this tender.

**Note:**

**a)** Bidders are required to ensure that the value of completed job indicated by them is exclusive of Service tax. Accordingly, the completion certificate submitted by the bidder shall separately indicate the service tax amount included in the value of completed job OR a separate certificate from the respective client, mentioning the service tax amount if any, included in the value of completed job under consideration should be submitted by the bidder.

**b)** In case Service Tax amount/ component is not specified in the submitted completion certificate, then the amount equivalent to rate of applicable service tax for the subject work shall be deducted from the value of completed job mentioned in the completion certificate to arrive at the value of the completed job without service tax.

1.2 Bid will be rejected if not accompanied with adequate documentary proof(s) in support of experience(s) as mentioned in Para A (1.0), A(1.1) in the form of -

i) In case of contractor executing jobs in OIL, copy of Certificate of Completion (COC)/Certificate of Final Payment of jobs successfully completed during last 7(seven) years as on the original Bid Closing Date, showing gross value of job done.

OR

ii) Copy of Completion Certificate of experience (from the client (s) to whom EPCM services were rendered by the bidder) shall be submitted along with the bid in the organizational letter pad of the client (whose job was executed by the bidder) during the last 7(seven) years as on the original Bid Closing date, specifying -

(a) Brief description of work
(b) Value of the contract
(c) Contract period (in months)
(d) Actual completion period (in months)

(e) Year of completion

**Note: Bids from Consortium and JV are not allowed**

2.0 Successful bidder against this tender shall not involve/ participate directly or indirectly or in any form against the tender for EPC/Package Vendor/Site construction contract. Bidder must confirm the same in their offer by submitting an undertaking to this effect.

## B. FINANCIAL:

**1.0:**

i. **Annual Financial Turnover:** The bidder must have annual financial turnover of at least of **Rs.8.12 Crore** in any of the preceding three (3) Financial/Accounting years as per the Audited Annual Reports.

**Note 1 :** Documentary evidences in the form of Audited Balance Sheet and Profit & Loss Account of preceding 3 Financial/Accounting Years to be considered from the original bid closing dated shall be submitted along with the Techno-Commercial bid towards proof of having Annual Turnover as stated above. However, in case of non-corporate bidder, the Financial Statements are to be submitted, duly certified by practicing Chartered Accountant's Firm as applicable.

ii. **Net Worth:** The Financial Net Worth of the bidder must be positive for the preceding Financial/Accounting Year to be considered from the original Bid Closing date.

iii. **Working Capital**: The bidder should have minimum working capital of **Rs. 3.25 Crores** as per the last audited financial year.

**Note2:**

1. Working capital shall be calculated as current assets minus current liabilities as reported in the audited balance sheet.
2. In case the bidder's working capital is inadequate, the bidder shall supplement this with a letter from his bank confirming the availability of line of credit to meet the shortfall in specified working capital requirement.

Considering the time required for preparation of Financial Statements, if the last date of preceding financial/accounting year falls within the preceding

six months reckoned from the original bid closing date and the Financial Statements of the preceding financial /accounting year are not available with bidder, then the financial turnover of the previous three financial/accounting years excluding the preceding financial/accounting years will be considered. In such cases, the Net Worth of the previous financial/accounting year excluding the preceding financial/accounting year will be considered. However, the bidder has to submit an affidavit/undertaking certifying that 'the balance sheet/Financial Statements for the financial year …… (*As the case may be*) has actually not been audited so far'.

For proof of Annual Turnover & Net Worth any one of the following documents must be submitted along with the bid :-

a) A certificate issued by a practicing Chartered Cost Account (with Membership Number and Firm Registration Number), certifying the Annual Turnover & Net Worth as per format prescribed in Annexure.

OR

b) Audited Balance Sheet along with Profit & Loss account.

**3.0** **Duration of Contract Period:** The duration of this Consultancy service shall be of 28 (twenty eight) months {26 (twenty six) months for project completion and additional (2) months for contract/project closure activities} period from the date of issue of Letter of Award (LOA) to the successful bidder. Offers with completion schedule longer than the above time period shall be rejected.

## C. COMMERCIAL - BID SUBMISSION

1.0 The tender is invited under SINGLE STAGE-TWO BID SYSTEM. The bidder has to submit both the "TECHNICAL" and "PRICE" bid separately through electronic form in the OIL's e-Tender portal within the Bid Closing Date and Time stipulated in the e-Tender. The Technical Bid is to be uploaded as per the Scope of Work & Technical Specification of the tender in **"Technical RFx Response" Tab** and Price Bid to be uploaded as per the Price Bid format in the **"Notes & attachment" Tab**. Bids shall be rejected outright if the prices are indicated in the technical bids. Bids not conforming to this two bid system shall be rejected outright.

NB: To participate in OIL's E-procurement tender, bidders should have a legally

valid digital certificate **of Class 3 with Organizations Name** and **Encryption certificate** as per Indian IT Act from the licensed Certifying Authorities operating under the Root Certifying Authority of India (RCAI), Controller of Certifying Authorities (CCA) of India (http://www.cca.gov.in). **Digital Signature Certificates having "Organization Name" field as "Personal" are not acceptable**.

2.0 Bidder shall offer firm prices. Price quoted by the successful bidder must remain firm during the execution of the contract and not subject to variation on any account.

3.0 Bids with shorter validity period will be rejected as being non responsive.

4.0 During the Online submission of the bid, a scanned copy of the Bid Security shall be uploaded as a part of the Technical Bid. The validity period and amount of Bid Security shall be as specified in the Forwarding Letter of the Bid Document. **The Original Bid Security shall however be forwarded to office of the "DGM(C&P)-PP, Oil India Limited, Duliajan-786602, Assam"** which should reach the said office on or before 11.00 Hrs(IST) on the bid closing date, otherwise Bid will be rejected.

5.0 The Integrity Pact is applicable against this tender. OIL shall be entering into an Integrity Pact with the bidders as per format enclosed as Proforma IV of the bid 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. Any bid not accompanied by Integrity Pact Proforma duly signed (digitally) by the bidder shall be rejected straightway. 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.

6.0 No bid can be submitted after the submission deadline is reached. The system time displayed on e-procurement web page shall decide the submission deadline.

7.0 Bid received through the e-procurement portal shall only be accepted. Bids received in any other form shall not be accepted.

8.0 Bid should be submitted online up to 11:00 AM (IST) (Server Time) on the date as mentioned and will be opened on the same day at 02:00 PM (IST) at Office of the DGM-Contracts, Oil India Ltd., Duliajan in presence of authorized representative of the bidder.

9.0 The bid documents are non-transferable. Bid can only be submitted in the name of the bidder in whose name the User ID and Password have been issued. Unsolicited bids will not be considered and will be straightway rejected.

10.0 Bids shall be typed or written in indelible ink and shall be digitally signed by the bidder or his authorised representative.

11.0 Any physical documents wherever called for, submitted by bidders shall contain no interlineations, white fluid erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such correction shall be initialed by the person or persons who has/have digitally signed the Bid.

12.0 Bidders shall bear, within the quoted rates, the personal tax as applicable in respect of their personnel and sub-contractor's personnel, arising out of execution of the contract.

13.0 Bidders shall bear, within the quoted rate, the corporate income tax as applicable on the income from the contract.

14.0 Any bid containing false statement will be rejected.

15.0 Bidders must quote clearly and strictly in accordance with the price schedule outlined in "Price Bid Format" of bidding document; otherwise the bid will be summarily rejected.

16.0 Bidder must accept and comply with the following clauses as given in the Tender Document in toto failing which offer will be rejected –

(i) Performance Security Clause
(ii) Force Majeure Clause
(iii) Tax Liabilities Clause
(iv) Arbitration Clause
(v) Acceptance of Jurisdiction and Applicable Law Clause
(vi) Liquidated damage cum penalty Clause
(vii) Termination Clause
(vii) Liability Clause
(ix) Withholding Clause
(x) Integrity Pact Clause

**D. GENERAL:**

1.0 In case the bidder takes exception to any clause of Bid Document not covered under BEC/BRC, then the Company (OIL) has the discretion to load or reject the offer on account of such exception if the bidder does not withdraw/modify the deviation when/as advised by the Company (OIL). The loading so done by the Company (OIL) will be final and binding on the Bidders. No deviation will however, be accepted in the clauses covered under BRC.

2.0 To ascertain the substantial responsiveness of the bid the Company (OIL) reserves the right to ask the Bidder for clarification in respect of clauses covered under BRC also and such clarification fulfilling the BRC clauses must be received within the deadline given by the Company (OIL), failing which the bid will be summarily rejected.

3.0 In case any of the clauses in the BRC contradicts with other clauses of Bid Document elsewhere, then the clauses in the BRC shall prevail.

4.0 Any exceptions/deviations to the tender must be spelt out by bidder in their 'Techno-Commercial' bid only. Any additional information/terms/ conditions furnished in the 'Price Bid' will not be considered by the Company (OIL) for evaluation/award of contract.

5.0 The originals of such documents [furnished by bidders(s)] shall have to be produced by bidder(s) to the Company (OIL) as and when asked for.

## II. PRICE BID EVALUATION (Part of BEC):

The bids conforming to the technical specifications, terms and conditions stipulated in the bid documents and considered to be responsive after subjecting to the Bid Rejection Criteria as well as verification of original of any or all documents/documentary evidences pertaining to BRC, will be considered for further evaluation as per the Bid Evaluation Criteria given below.

1.0 If there is any discrepancy between the unit price and the total price, the unit price will prevail and the total price shall be corrected. Similarly, if there is any discrepancy between words and figure, the amounts in words shall prevail and will be adopted for evaluation.

2.0 The bidders must quote their charges/rates in the manner as called for vide Price Schedule in the **Part-3 Section - III, "Schedule of Rates & Payment".**

3.0 To ascertain the inter-se-ranking, the comparison of the responsive bids will be made subject to loading for any deviation. Commercial Bids shall be evaluated taking into account the rates quoted in the Price Schedule in the Part-3, Section – III, "Schedule of Rates & Payment" by taking into account the summation of the following:

TOTAL CONTRACT COST, **Total Price (T) – {A+B+C+D+E+F+G+H+I+J} + {K}**

Where,

i. Total Charge for item no 10: 5% of the total contract cost "T" - A

ii. Total Charge for item no 20: 7.5% of the total contract cost "T" - B

Iii - Total Charge for item no 30: 7.5% of the total contract cost "T" - C

IV - Total Charge for item no 40: 20% of the total contract cost "T"- D

v - Total Charge for item no 50: 15% of the total contract cost "T"- E

vi. Total Charge for item no 60: 20 % of the total contract cost "T"- F

vii. Total Charge for item no 70: 15% of the total contract cost "T"-G

Viii - Total Charge for item no 80: 5% of the total contract cost "T"-H

Xi - Total Charge for item no 90: 3% of the total contract cost "T"-I

x - Total Charge for item no 100: 2% of the total contract cost "T"-J

**K- Service Tax as applicable shall be loaded by OIL.**

4.0 Granting of Purchase Preference to central PSUs: Purchase preference facilities to central Public Sector enterprises presently not applicable.

**END OF PART-2**

## Part-3, Section-I
## GENERAL CONDITIONS OF CONTRACT

1.0 **DEFINITIONS**:

1.1 In the contract, the following terms shall be interpreted as indicated:

(a) "Contract" means agreement entered into between Company and contractor, as recorded in the contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein;

(b) “Contract Price" means the price payable to contractor under the contract for the full and proper performance of its contractual obligations;

(c) “Work" means each and every activity required for the successful performance of the services described in Section-II, the Scope of Work / Terms of Reference;

(d) "Company" means Oil India Limited (OIL);

(e) “LSTK Contractor” means the individual or firm or Body incorporate performing the construction works.

(e) “EPCM” means the individual or firm or Body incorporate performing the work under this Contract;

(f) "Contractor's Personnel" means the personnel to be provided by the contractor to provide services as per the contract;

(g) "Company's Personnel" means the personnel to be provided by OIL or OIL's contractor (other than the Contractor executing this Contract). The company representatives of OIL are also included in the Company's personnel.

(h) "Services" means the work specified in Part 3, Section-II, and all other obligations to be complied with by Contractor pursuant to and in accordance with the terms of the contract.

(i) “Specification” means the description of the Services and/or Equipment set out in Part 3, Section-II.

2.0 **EFFECTIVE DATE, MOBILISATION TIME, AND COMPLETION TIME OF THE CONTRACT**:

2.1 **EFFECTIVE DATE**: The contract shall become effective as of the date the Company notifies the Contractor in writing that it has been awarded the Contract i.e. with effect from the date of issue of Letter of Award (LOA) of the Contract.

2.2 **MOBILISATION TIME**: The Kick-off Meeting shall be held at Duliajan (Assam) within **a maximum period of 07 days from the date of issue of Letter of Award (LOA).** Contractor shall depute their personnel for attending the Kick-Off Meeting at Duliajan within 07 days from **the date of Letter of Award (LOA).** Mobilisation shall be deemed to be completed when Contractor's personnel arrive at Duliajan for the Kick-Off meeting within 07 days from **the date of Letter of Award (LOA).** In the event of delay on the part of the Contractor to depute their personnel for the Kick-Off Meeting, Liquidated Damage (LD) as per Clause No. 17.0 hereunder will be applicable.

2.3 **COMPLETION TIME OF CONTRACT**: The duration of the Consultancy service shall be **28 months** from the date of issue of Letter of Award (LOA). In the event of delay on the part of the Contractor to complete the project within the stipulated period of **28 months**, Liquidated Damage (LD) as per Clause No. 18.0 hereunder will be applicable.

**Note: If PGTR (in case of any one of the plant or both) gets extended due to non-fulfilment of process output requirement as defined in the tender (SOW & TOR) then the contract period will get extended by the duration the PGTR is getting extended without any enhancement in the contract value.**

3.0 **GENERAL OBLIGATIONS OF CONTRACTOR:** Contractor shall, in accordance with and subject to the terms and conditions of this Contract:

3.1 Perform the work described in the Scope of Work / Terms of Reference (Section II) in most economic and cost effective way.

3.2 Except as otherwise provided in the Scope of Work / Terms of Reference and the special Conditions of the contract, provide all labour as required to perform the work.

3.3 Perform all other obligations, work and services which are required by the terms of this contract or which reasonably can be implied from such terms as being necessary for the successful and timely completion of the work.

3.4 Contractor shall be deemed to have satisfied himself before submitting their bid as to the correctness and sufficiency of its bid for the services required

and of the rates and prices quoted, which rates and prices shall, except insofar as otherwise provided, cover all its obligations under the contract.

3.5 Contractor shall give or provide all necessary supervision during the performance of the services and as long thereafter within the warranty period as company may consider necessary for the proper fulfilling of contractor's obligations under the contract.

4.0 **GENERAL OBLIGATIONS OF THE COMPANY**: Company shall, in accordance with and subject to the terms and conditions of this contract:

4.1 Pay Contractor in accordance with terms and conditions of the contract.

4.2 Allow Contractor access, subject to normal security and safety procedures, to all areas as required for orderly performance of the work.

4.3 Perform all other obligations required of Company by the terms of this contract.

5.0 **PERSONNEL TO BE DEPLOYED BY THE CONTRACTOR**:

5.1 Contractor warrants that it shall provide competent, qualified and sufficiently experienced personnel to perform the work correctly and efficiently.

5.2 The Contractor should ensure that their personnel observe applicable company and statutory safety requirement. Upon Company's written request, contractor, entirely at its own expense, shall remove within a maximum period of 7(seven) days, any personnel of the Contractor determined by the Company to be unsuitable and shall promptly replace such personnel with personnel acceptable to the Company.

5.3 The Contractor shall be solely responsible throughout the period of the contract for providing all requirements of their personnel including but not limited to, their transportation to & fro from Duliajan/ field site, en-route/local boarding, lodging & medical attention, Safety & Security etc. Company shall have no responsibility or liability in this regard.

5.4 Contractor's key personnel shall be fluent in English language (both writing and speaking).

6.0 **GUARANTEE, WARRANTY AND REMEDY OF DEFECTS**:

6.1 Contractor warrants that it shall perform the work in a professional manner and in accordance with their highest degree of quality, efficiency, and with the state of the art technology/inspection services and in conformity with all specifications, standards and drawings set forth or referred to in the

Technical Specifications. They should comply with the instructions and guidance which Company may give to the Contractor from time to time.

6.2 Should Company discover at any time during the tenure of the Contract or within 3 (three) months after completion of the Contract that the work carried out by the Contractor does not conform to the foregoing warranty, Contractor shall after receipt of notice from Company, promptly perform all corrective work required to make the services conform to the Warranty. Such corrective work shall be performed entirely at contractor's own expenses. If such corrective work is not performed within a reasonable time, the Company, at its option, may have such remedial work carried out by others and charge the cost thereof to Contractor subject to a maximum of the Contract value payable for the defective work which needs corrective action which the Contractor must pay promptly. In case Contractor fails to perform remedial work, the Performance Security shall be forfeited.

7.0 **CONFIDENTIALITY, USE OF CONTRACT DOCUMENTS AND INFORMATION:**

7.1 Contractor shall not, without Company's prior written consent, disclose the contract, or any provision thereof, or any specification, plan, drawing pattern, sample or information furnished by or on behalf of Company in connection therewith, to any person other than a person employed by Contractor in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far, as may be necessary for purposes of such performance with prior permission from Company. However, nothing hereinabove contained shall deprive the Contractor of the right to use or disclose any information:

(a) which is possessed by the Contractor, as evidenced by the Contractor's written records, before receipt thereof from the Company which however the Contractor shall immediately inform to Company ; or

(b) which is required to be disclosed by the Contractor pursuant to an order of a court of competent jurisdiction or other governmental agency having the power to order such disclosure, provided the Contractor uses its best efforts to provide timely notice to Company of such order to permit Company an opportunity to contest such order subject to prior permission from Company.

7.2 Contractor shall not, without Company's prior written consent, make use of any document or information except for purposes of performing the contract.

7.3 Any document supplied to the Contractor in relation to the contract other than the Contract itself remain the property of Company and shall be returned (in all copies) to Company on completion of Contractor's performance under the

Contract if so required by Company. However, the above obligation shall not extend to information which:

i) is, at the time of disclosure, known to the public which Contractor shall immediately inform Company ;

i) is lawfully becomes at a later date known to the public through no fault of Contractor subject to Contractor's undertaking that no information has been divulged by them to the public;

ii) is lawfully possessed by Contractor before receipt thereof from Company which should be immediately informed to Company;

iii) is developed by Contractor independently of the information disclosed by Company which should be shared with the Company;

v) Contractor is required to produce before competent authorities or by court order subject to prior permission from Company;

8.0 **TAXES, DUTIES & LEVIES:**

8.1 Tax levied on Contractor as per the provisions of Indian Income Tax Act and any other enactment/rules on income derived/payments received under the contract will be on Contractor's account.

8.2 Contractor shall be responsible for payment of personal taxes, if any, for all the personnel deployed in India by Contractor.

8.3 The Contractor shall furnish to the Company, if and when called upon to do so, relevant statement of accounts or any other information pertaining to work done under the contract for submitting the same to the Tax authorities, on specific request from them in accordance with provisions under the law. Other than the information provided by the Contractor, the Contractor shall not be responsible for any inaccurate information provided by the Company to the Tax authorities and the Company shall indemnify the Contractor for all claims, expenses, costs or losses of any nature arising from such inaccuracy. Contractor shall be responsible for preparing and filing the return of income etc. within the prescribed time limit to the appropriate authority.

8.4 Prior to start of operations under the Contract, the Contractor shall furnish the company with the necessary documents, as asked for by the company and/ or any other information pertaining to the contract, which may be required to be submitted to the Income Tax authorities at the time of obtaining "No Objection Certificate" for releasing payments to the contractor.

8.5 Corporate income tax will be deducted at source from the invoice at the specified rate of income tax as per the provisions of Indian Income Tax Act as may be in force from time to time and Company will issue TDS Certificate to the Contractor as per the provisions of Income Tax Act.

8.6 Corporate and personnel taxes on contractor shall be the liability of the contractor and the company shall not assume any responsibility on this account.

8.7 All local taxes, levies and duties, sales tax, octroi, etc. on purchases and sales made by contractor shall be borne by the Contractor.

8.8 **Service Tax**: The price excludes Services Tax and the service tax as applicable shall be to the Company account. The Service tax amount on the taxable part of the services provided by the Contractor shall be paid by the Company as per provisions of the Service Tax Act. The price offer for the subject work shall exclude service tax. The bidder shall indicate in its bid the Service Tax registration no. and in case the Service Tax registration no.is not obtained, the bidder will give confirmation for obtaining registration with a copy of application for registration. The total contract value for award of job to consultant by owner will be determined by considering the prevalent service tax rate at the time of award. Upon award of work, Service tax shall be paid by the owner to the contractor at the rate mentioned in the LOA in accordance with the provisions of Rule 4A of the Service Tax Rules 1994 which state that each invoice shall be serially numbered and shall contain the following details:

1. The name, address and registration number of the service provider.
2. The name and address of the recipient of the taxable service.
3. Description, classification and value of taxable service provided and
4. The Service Tax and Cess payable on such services.

The above details are required to enable Owner to claim CENVAT credit on Service Tax paid. In case contractor does not furnish such invoices enabling the owner to claim CENVAT benefit, then such amount shall not be paid to the contractor irrespective of the payment of such amount by the contractor to the Tax authorities. However, the contractor's liability shall be limited to furnishing of CENVATABLE invoices.

b) Statutory variation on Service Tax (as payable to the bidder) as applicable for the category/service shall be to Owner's account up to the contractual completion period.

9.0 **INSURANCE**:

9.1 The Contractor shall arrange insurance to cover all risks in respect of their personnel, materials and equipment(except when tools/equipment are below

Rotary Table or in the well bore) belonging to the Contractor or its subcontractor (if applicable) during the currency of the contract including the third party items/consumables. For materials/equipment belong to the Contractor or its sub-contractor, Contractor may self-insure the same.

9.2 Contractor shall at all time during the currency of the contract provide, pay for and maintain the following insurances amongst others except when tools/equipment are below Rotary Table or in the well bore :

a) Workmen compensation insurance as required by the laws of the country of origin of the employee.

b) Employer's Liability Insurance as required by law in the country of origin of employee.

c) General Public Liability Insurance or Comprehensive General Liability insurance covering liabilities including contractual liability for bodily injury, including death of persons, and liabilities for damage of property. This insurance must cover all operations of Contractor required to fulfil the provisions under this contract.

d) Contractor's equipment used for execution of the work hereunder shall have an insurance cover with a suitable limit (as per international standards) except when tools / equipment are below Rotary Table or in the well bore or Contractor may self-insure its tools/ equipment.

e) Automobile Public Liability Insurance covering owned, non-owned and hired automobiles used in the performance of the work hereunder, with bodily injury limits and property damage limits as governed by Indian Insurance regulations.

f) Public Liability Insurance as required under Public Liability Insurance Act 1991, if applicable.

9.3 Any deductible set forth in any of the above insurance shall be borne by Contractor.

9.4 Contractor shall furnish to Company prior to commencement date, certificates of all its insurance policies covering the risks mentioned above.

9.5 If any of the above policies expire or are cancelled during the term of this contract and Contractor fails for any reason to renew such policies, then the Company will renew/replace same and charge the cost thereof to Contractor. Should there be a lapse in any insurance required to be carried out by the Contractor for any reason whatsoever, loss/damage claims resulting there from shall be to the sole account of Contractor.

9.6 Contractor shall require all of his sub-Contractor to provide such of the foregoing insurance coverage as Contractor is obliged to provide under this Contract and inform the Company about the coverage prior to the commencement of agreements with its sub-Contractors.

9.7 All insurance taken out by Contractor or their sub-contractor shall be endorsed to provide that the underwriters waive their rights of recourse on the Company and to the extent of the liabilities assumed by Contractor under this Contract.

10.0 **CHANGES**:

10.1 During the performance of the work, Company may make minor change to take care of any supplementary in the work within the general scope of this Contract including, but not limited to, changes in methodology, and minor additions to or deletions from the work to be performed. Contractor shall perform the work as changed. Changes of this nature will be affected by written order by the Company.

10.2 If any changes result in an increase in compensation due to Contractor or in a credit due to Company, Contractor shall submit to Company an estimate of the amount of such compensation or credit in a form prescribed by Company. Such estimates shall be based on the rates shown in the Schedule of rates (Section III). Upon review of Contractor's estimate, Company shall establish and set forth in the Change Order the amount of the compensation or credit for the change or a basis for determining a reasonable compensation or credit for the change. If Contractor disagrees with compensation or credit set forth in the Change Order, Contractor shall nevertheless perform the work as changed, and the parties will resolve the dispute in accordance with Clause 13.0 hereunder. Contractor's performance of the work as changed will not prejudice Contractor's request for additional compensation for work performed under the Change Order.

11.0 **FORCE MAJEURE**:

11.1 In the event of either party being rendered unable by `Force Majeure' to perform any obligation required to be performed by them under the contract, the relative obligation of the party affected by such `Force Majeure' will stand suspended for the period during which such cause lasts. The word `Force Majeure' as employed herein shall mean acts of God, war, revolt, agitation, strikes, riot, fire, flood, sabotage, civil commotion, road barricade (but not due to interference of employment problem of the Contractor), acts of government of the two parties, which makes performance impossible or impracticable and any other cause, whether of kind herein enumerated or otherwise which are not within the control of the party to the contract and which renders performance of the contract by the said party impossible.

11.2 Upon occurrence of such cause and upon its termination, the party alleging that it has been rendered unable as aforesaid thereby, shall notify the other party in writing within Seventy Two (72) hours of the alleged beginning and ending thereof, giving full particulars and satisfactory evidence in support of its claim.

11.3 Should 'force majeure' condition as stated above occurs and should the same be notified within seventy two (72) hours after its occurrence, both parties shall have no obligation. Parties will have the right to terminate the Contract if such 'force majeure' conditions continue beyond fifteen (15) days with prior written notice. Should either party decide not to terminate the Contract even under such condition, no payment would apply after expiry of fifteen (15) days force majeure period unless otherwise agreed to. Time for performance of the relative obligation suspended by 'Force Majeure' shall then stand extended by the period for which such cause lasts.

12.0 **TERMINATION:**

12.1 **TERMINATION ON EXPIRY OF THE TERMS (DURATION)**: The contract shall be deemed to have been automatically terminated on expiry of the duration of the Contract or the extension period, if exercised by Company under the provision of the Contract.

12.2 **TERMINATION ON ACCOUNT OF FORCE MAJEURE** - Either party shall have the right to terminate the Contract on account of Force Majeure as set forth in Para 11.0 above.

12.3 **TERMINATION ON ACCOUNT OF INSOLVENCY**- In the event that the Contractor at any time during the term of the Contract, becomes insolvent or makes a voluntary assignment of its assets for the benefit of creditors or is adjudged bankrupt, then the Company shall, by a notice in writing have the right to terminate the Contract and all the Contractor's rights and privileges hereunder, shall stand terminated forthwith.

12.4 **TERMINATION FOR UNSATISFACTORY PERFORMANCE**- If the Company considers that, the performance of the Contractor is unsatisfactory, or not up to the expected standard, the Company shall notify the Contractor in writing and specify in details the cause of the dissatisfaction. The Company shall have the option to terminate the Contract by giving 15 days notice in writing to the Contractor, if Contractor fails to comply with the requisitions contained in the said written notice issued by the Company,

12.5 **TERMINATION DUE TO CHANGE OF OWNERSHIP & ASSIGNMENT**- In case the Contractor's rights and / or obligations under the Contract and/or the Contractor's rights, title and interest to the equipment/material, are transferred

or assigned without the Company's consent, the Company may at its absolute discretion, terminate the Contract.

12.6 If at any time during the term of the Contract, breakdown of Contractor's equipment results in Contractor being unable to perform their obligations hereunder for a period of 15 successive days, Company at its option may terminate this Contract in its entirely without any further right or obligation on the part of the Company except for the payment of money then due. No notice shall be served by the Company under the condition stated above.

12.7 Notwithstanding any provisions herein to the contrary, the Contract may be terminated at any time by the company on giving 15 (fifteen) days written notice to the Contractor due to any other reason not covered under the above clause from 12.1 to 12.6 and in the event of such termination the Company shall not be liable to pay any cost or damage to the Contractor except for payment for services as per the Contract up to the date of termination including the De-mob cost, if any.

12.8 **CONSEQUENCES OF TERMINATION** - In all cases of termination herein set forth, the obligation of the Company to pay for Services as per the Contract shall be limited to the period up to the date of termination. Notwithstanding the termination of the Contract, the parties shall continue to be bound by the provisions of the Contract that reasonably require some action or forbearance after such termination.

12.9 Upon termination of the Contract, Contractor shall return to Company all of Company's items, which are at the time in Contractor's possession.

12.10 In the event of termination of contract, Company will issue Notice of termination of the contract with date or event after which the contract will be terminated. The contract shall then stand terminated and the Contractor shall demobilize their personnel & materials.

## 13.0 SETTLEMENT OF DISPUTES AND ARBITRATION:

### 13.1 Arbitration(Applicable for Suppliers/Contractors other than PSU) :

Except as otherwise provided elsewhere in the contract, if any dispute, difference, question or disagreement arises between the parties hereto or their respective representatives or assignees, in connection with construction, meaning, operation, effect, interpretation of the contract or breach thereof which parties are unable to settle mutually, the same shall be referred to Arbitration as provided hereunder:

1. A party wishing to commence arbitration proceeding shall invoke Arbitration Clause by giving 30 days notice to the other party. The

notice invoking arbitration shall specify all the points of dispute with details of the amount claimed to be referred to arbitration at the time of invocation of arbitration and not thereafter. If the claim is in foreign currency, the claimant shall indicate its value in Indian Rupee for the purpose of constitution of the arbitral tribunal.

2. The number of arbitrators and the appointing authority will be as under:

| **Claim amount (excluding claim for interest and counter claim, if any)** | **Number of Arbitrator** | **Appointing Authority** |
|---|---|---|
| Upto Rs. 5 Crore | Sole Arbitrator | OIL |
| Above Rs. 5 Crore | 3 Arbitrators | One Arbitrator by each party and the 3rd Arbitrator, who shall be the presiding Arbitrator, by the two Arbitrators. |

3. The parties agree that they shall appoint only those persons as arbitrators who accept the conditions of the arbitration clause. No person shall be appointed as Arbitrator or Presiding Arbitrator who does not accept the conditions of the arbitration clause.

4. Parties agree that there will be no objection if the Arbitrator appointed holds equity shares of OIL and/or is a retired officer of OIL/any PSU. However, neither party shall appoint its serving employees as arbitrator.

5. If any of the Arbitrators so appointed dies, resigns, becomes incapacitated or withdraws for any reason from the proceedings, it shall be lawful for the concerned party/arbitrators to appoint another person in his place in the same manner as aforesaid. Such person shall proceed with the reference from the stage where his predecessor had left if both parties consent for the same ; otherwise, he shall proceed de novo.

6. Parties agree that neither shall be entitled for any pre-reference or pendente-lite interest on its claims. Parties agree that any claim for such interest made by any party shall be void.

7. The arbitral tribunal shall make and publish the award within time stipulated as under :

| Amount of Claims and counter claims(excluding interest) | Period for making and publishing of the award(counted from the date of first meeting of the Arbitrators) |
|---|---|
| Upto Rs. 5 Crore | Within 8 months |
| Above Rs. 5 Crore | Within 12 months |

The above time limit can be extended by Arbitrator, for reasons to be recorded in writing, with the consent of the other parties.

8. If after commencement of the arbitration proceedings, the parties agree to settle the dispute mutually or refer the dispute to conciliation, the arbitrators shall put the proceedings in abeyance until such period as requested by the parties.

9. Each party shall be responsible to make arrangements for the travel and stay etc. of the arbitrator pointed by it. Claimant shall also be responsible for making arrangements for travel/stay arrangements of the Presiding Arbitrator and the expenses incurred shall be shared equally by the parties.
In case of sole arbitrator, OIL shall make all necessary arrangements for his travel, stay and the expenses incurred shall be shared equally by the parties.

10. The Arbitration shall be held at the place from where the contract has been awarded. However, parties to the contract can agree for a different place for the convenience of all concerned.

11. The Arbitrator(s) shall give reasoned and speaking award and it shall be final and binding on the parties.

12. Subject to aforesaid, provisions of the Arbitration and Conciliation Act, 1996 and any statutory modifications or re-enactment thereof shall apply to the arbitration proceedings under this clause.

**13.2 <u>Arbitration(applicable in case of Contract awarded on Public Sector Enterprise)</u>** :

In the event of any dispute or difference relating to, arising from or connected with the Contract, such dispute or difference shall be referred by either party to the arbitration of one of the Arbitrators in the Department of Public Enterprises, to be nominated by the Secretary to the Government of India, In-Charge of the Bureau of Public Enterprises. The Arbitration and Conciliation Act 1996 shall

not be applicable to the Arbitration under this clause. The award of the Arbitrator shall be binding upon the parties to the dispute, provided however, any party aggrieved by such award may make a further reference for setting aside or revision of the award to the Law Secretary, Deptt. of Legal Affairs, Ministry of Law and Justice, Government of India. Upon such reference, the dispute shall be decided by the Law Secretary or the Special Secretary/Additional Secretary, whose decision shall bind the parties finally and conclusively. The parties in the dispute will share equally the cost of the arbitration as intimated by the Arbitrator.

The venue of all arbitrations under both 13.1 & 13.2 will be Duliajan, Assam. The award made in pursuance thereof shall be binding on the parties.

14.0 **NOTICES**:

14.1 Any notice given by one party to other, pursuant to this Contract shall be sent in writing or by Fax and confirmed in writing to the applicable address specified below:

**Company**

a) **For Contractual Matters**
DGM (Projects-C&P)
Projects Department

OIL INDIA LIMITED
PO DULIAJAN - 786602
ASSAM, INDIA
Email: prodproj@oilindia.in

b) **For Technical Matters**
P.P Adhyapak
Dy.CE (Projects)
Projects Department
OIL INDIA LIMITED
PO Duliajan - 786602,
Assam, India
Email: prodproj@oilindia.in

c) **Contractar**

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Fax No. :
Tel No. :
E-mail :

14.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

15.0 **SUBCONTRACTING/ASSIGNMENT**:

15.1 Contractor shall not subcontract, transfer or assign the contract, in full or any part under this contract, to any third party (ies). Except for the main

services under this contract, Contractor may sub-contract the petty support services subject to Company's prior approval. However, Contractor shall be fully responsible for complete execution and performance of the services under the Contract.

16.0 **MISCELLANEOUS PROVISIONS**:

16.1 Contractor shall give notices and pay all fees at their own cost required to be given or paid by any National or State Statute, Ordinance, or other Law or any regulation, or bye-law of any local or other duly constituted authority as may be in force from time to time in India, in relation to the performance of the services and by the rules & regulations of all public bodies and companies whose property or rights are affected or may be affected in any way by the services.

16.2 Contractor shall conform in all respects with the provisions of any Statute, Ordinance of Law as aforesaid and the regulations or bye-law of any local or other duly constituted authority which may be applicable to the services and with such rules and regulation, public bodies and Companies as aforesaid and shall keep Company indemnified against all penalties and liability of every kind for breach of any such Statute, Ordinance or Law, regulation or bye-law.

16.3 During the tenure of the Contract, Contractor shall keep the site where the services are being performed reasonably free from all unnecessary obstruction and shall store or dispose of any equipment and surplus materials and clear away and remove from the site any wreckage, rubbish or temporary works no longer required. On the completion of the services, Contractor shall clear away and remove from the site any surplus materials, rubbish or temporary works of every kind and leave the whole of the site clean and in workmanlike condition to the satisfaction of the Company.

16.4 Key personnel cannot be changed during the tenure of the Contract except due to sickness/death/resignation/termination/retirement of the personnel in which case the replaced person should have equal experience and qualification which will be again subject to approval by the Company.

17.0 **LIQUIDATED DAMAGES FOR DEFAULT IN TIMELY MOBILISATION OF PERSONNEL FOR KICK OFF MEETING**:

17.1 In the event of Contractor's default in timely Mobilisation of their Personnel for Kick-Off Meeting under the provision of this contract within the stipulated period, the Contractor shall be liable to pay liquidated damages at the rate of 0.5% of the total contract value per week or part thereof of delay subject to maximum of 7.5%. Company may without prejudice to any other method of recovery, deduct the amount of such liquidated damages from any amount due to the contractor. Liquidated Damages will be reckoned from the date after expiry of the scheduled mobilisation period till the completion of mobilisation.

17.2 Both Contractor & Company agree that the above percentages of liquidated damage is genuine pre-estimates of loss /damage, which the Company would have to suffer on account of delay/breach on the part of the Contractor and the said amount will be payble on demand without there being any proof of the actual loss /or damage caused by such delay/breach. Decision of the Company in the matter of applicability liquidated damage shall be final & binding on the Contractor.

17.3 The Company also reserves the right to cancel the Contract without any compensation whatsoever in case of failure to adhere to the mobilisation schedule of the contract.

18.0 **LIQUIDATED DAMAGES FOR DEFAULT IN TIMELY COMPLETION OF PROJECT:**

18.1 In the event of Contractor's default in timely completion of the project under the provision of this contract (as per sub-clause 2.3 of Section I) due to reasons attributable to Contractor, the Contractor shall be liable to pay liquidated damages at the rate of 0.5% of the total contract value per week or part thereof of delay subject to a maximum of 7.5%. The Company may without prejudice to any other method of recovery, deduct the amount of such liquidated damages from any amount due to the contractor.

18.2 The Company also reserves the right to cancel the Contract without any compensation whatsoever in case of failure to Complete the work within the stipulated period. In the event of non-completion of the jobs as per the provisions of this contract, the company reserves the right to claim back the amount already paid to the contractor. Any part/phase completion, barring the final phase, will be regarded as non-completion of the contract and loss of time & cost to the company.

18.3 However, the maximum amount of Liquidated Damages for both delay in Mobilisation and delay in completion of project combined shall not exceed 7.5% of total contract value.

**19.0 PERFORMANCE SECURITY**: **The Contractor shall furnish to Company a Performance Security for an amount equivalent to 10% of the annualized Contract value for successful completion & covering the defect liability period**. The performance security shall be payable to Company as compensation for any loss resulting from Contractor's failure to fulfill their obligations under the Contract. **In the event of extension of the Contract period, validity of the bank guarantee shall be suitably extended by the Contractor**. The bank

guarantee will be discharged by Company not later than 30 days following its expiry.

**20.0 ASSOCIATION OF COMPANY'S PERSONNEL:** Company's engineer will be associated with the work throughout the project. The Contractor shall execute the work with professional competence and in an efficient and workman like manner and provide Company with a standard of work customarily provided by reputed international companies in the petroleum industry.

**21.0 LABOUR:** The recruitment of labour, if any, shall be met from the areas of operation and wages will be according to the rates prevalent at the time which can be obtained from the District Authorities of the area. The facilities to be given to the labourers should conform to the provisions of labour laws as per contract labour (Regulation and Abolition) Act, 1970.

**22.0 LIABILITY:**

22.1 Except as otherwise expressly provided, neither Company nor its servants, agents, nominees, contractors, or sub-contractors shall have any liability or responsibility whatsoever to whomsoever for loss of or damage to the equipment and/or loss of or damage to the property of the Contractor and/or their contractors or sub-contractors, irrespective of how such loss or damage is caused and even if caused by the negligence of Company and/or its servants, agent, nominees, assignees, contractors and sub-contractors. The Contractor shall protect, defend, indemnify and hold harmless Company from and against such loss or damage and any suit, claim or expense resulting there from.

22.2 Neither Company nor its servants, agents, nominees, assignees, contractors, sub-contractors shall have any liability or responsibility whatsoever for injury to, illness, or death of any employee of the Contractor and/or of its contractors or subcontractors irrespective of how such injury, illness or death is caused and even if caused by the negligence of Company and/or its servants, agents nominees, assignees, contractors and sub-contractors. Contractor shall protect, defend, indemnify and hold harmless Company from and against such liabilities and any suit, claim or expense resulting there from.

22.3 The Contractor hereby agrees to waive its right to recourse and further agrees to cause their underwriters to waive their right of subrogation against Company and/or its underwriters, servants, agents, nominees, assignees, contractors and subcontractors for loss or damage to the equipment of the Contractor and/or of its subcontractors when such loss or damage or liabilities arises out of or in connection with the performance of the Contract limited to the Contractor's liabilities agreed to under this Contract.

22.4 The Contractor hereby further agrees to waive its right of recourse and

agrees to cause its underwriters to waive their right of subrogation against Company and/or its underwriters, servants, agents, nominees, assignees, contractors and subcontractors for injury to, illness or death of any employee of the Contractor and /or of its contractors, sub-contractors and/or their employees when such injury, illness or death arises out of or in connection with the performance of the Contract limited to the Contractor's liabilities agreed to under this Contract.

22.5 Except as otherwise expressly provided, neither Contractor nor its servants, agents, nominees, contractors or sub-contractors shall have any liability or responsibility whatsoever to whomsoever for loss of or damage to the equipment and/or loss or damage to the property of the Company and/or their contractors or sub-contractors, irrespective of how such loss or damage is caused and even if caused by the negligence of Contractor and/or its servants, agents, nominees, assignees, Contractor and sub-contractors. The Company shall protect, defend, indemnify and hold harmless Contractor from and against such loss or damage and any suit, claim or expense resulting there from.

22.6 Neither Contractor nor its servants, agents, nominees, assignees, contractors, subcontractors shall have any liability or responsibility whatsoever to whomsoever for injury or illness, or death of any employee of the Company and/or of its contractors or sub-contractors irrespective of how such injury, illness or death is caused and even if caused by the negligence of Contractor and/or its servants, agents, nominees, assignees, contractors and sub-contractors. Company shall protect, defend indemnify and hold harmless Contractor from and against such liabilities and any suit, claim or expense resulting there from.

22.7 The Company agrees to waive its right of recourse and further agrees to cause its underwriters to waive their right of subrogation against Contractor and /or its underwriters, servants, agents, nominees, assignees, contractors and subcontractors for loss or damage to the equipment of Company and/or its contractors, sub-contractors when such loss or damage or liabilities arises out of or in connection with the performance of the Contract.

22.8 The Company hereby further agrees to waive its right of recourse and agrees to cause it underwriters to waive their right of subrogation against Contractor and/or its underwriters, servants, agents, nominees, assignees, Contractor and sub-contractors for injury to, illness or death of any employee of the Company and/or of its contractors, sub-contractors and/or their employees when such injury, illness or death arises out of or in connection with the performance of the Contract.

23.0 **LIMITATION OF LIABILITY**: Notwithstanding any other provisions herein to the contrary, except only in cases of willful misconduct and / or criminal acts,

(a) Neither the Contractor nor the Company (OIL) shall be liable to the other, whether in Contract, tort, or otherwise, for any consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs.

(b) Notwithstanding any other provisions incorporated elsewhere in the contract, the aggregate liability of the Contractor in respect of this contract, whether under Contract, in tort or otherwise, shall not exceed 50% of the Annualized Contract Price, provided however that this limitation shall not apply to the cost of repairing or replacing defective equipment by the Contractor, or to any obligation of the Contractor to indemnify the Company with respect to Intellectual Property Rights.

(c) Company shall indemnify and keep indemnified Contractor harmless from and against any and all claims, costs, losses and liabilities in excess of the aggregate liability amount in terms of clause (b) above.

**24.0 INDEMNITY AGREEMENT:**

24.1 Except as provided hereof Contractor agrees to protect, defend, indemnify and hold Company harmless from and against all claims, suits, demands and causes of action, liabilities, expenses, cost, liens and judgments of every kind and character, without limit, which may arise in favour of Contractor's employees, agents, contractors and sub-contractors or their employees on account of bodily injury or death, or damage to personnel/property as a result of the operations contemplated hereby, regardless of whether or not said claims, demands or causes of action arise out of the negligence or otherwise, in whole or in part or other faults.

24.2 Except as provided hereof Company agrees to protect, defend, indemnify and hold Contractor harmless from and against all claims, suits, demands and causes of action, liabilities, expenses, cost, liens and judgments of every kind and character, without limit, which may arise in favour of Company's employees, agents, contractors and sub-contractors or their employees on account of bodily injury or death, or damage to personnel/property as a result of the operations contemplated hereby, regardless of whether or not said claims, demands or causes of action arise out of the negligence or otherwise, in whole or in part or other faults.

**25.0 INDEMNITY APPLICATION:** The indemnities given herein above, whether given by Company or Contractor shall be without regard to fault or to the negligence of either party even though said loss, damage, liability, claim, demand, expense, cost or cause of action may be caused, occasioned by or contributed to by the negligence, either sole or concurrent of either party.

**26.0 PAYMENT, MANNER OF PAYMENT, RATES OF PAYMENT & INVOICING PROCEDURE:**

26.1 Company shall pay to Contractor, during the term of the contract, the amount due calculated according to the schedule of rates and schedule of payment set and in accordance with other provisions hereof. No other payments shall be due from Company unless specifically provided for in this contract. All payments will be made in accordance with the terms hereinafter described.

26.1.1 Request for payment/part payment to third party i.e. other than the party on whom the Contract has been awarded will not be entertained by OIL under any circumstances. *The offers stipulating payment/part payment to such third party will be considered as non-responsive and such offers will be rejected.*

26.2 **MANNER OF PAYMENT**: All payments due by Company to Contractor shall be made at Contractor's designated bank. All bank charges will be to Contractor's account.

26.3 Payment of any invoices shall not prejudice the right of Company to question the validity of any charges therein, provided Company within one year after the date of payment shall make and deliver to Contractor written notice of objection to any item or items the validity of which Company questions.

26.4 Contractor shall raise invoices for release of payment under the Contract as per Schedule of Rates of the Contract.

26.5 Contractor shall submit invoices to Company on the day following the end of each month for all monthly charges due to the Contractor.

26.6 Invoice for reimbursable charges related to the contract will be accompanied by documents supporting the cost incurred.

26.7 Payment of monthly invoices, if undisputed, shall be made within 30 days following the date of receipt of invoice by Company.

26.8 Company shall within 20 days of receipt of the invoice notify Contractor of any item under dispute, specifying the reasons thereof, in which event, payment of the disputed amount may be withheld until settlement of the dispute, but payment shall be made of any undisputed portion. This will not prejudice the

Company's right to question the validity of the payment at a later date as envisaged in sub-clause **26.3** above.

26.9 The acceptance by Contractor of part payment on any billing not paid on or before the due date shall not be deemed a waiver of Contractor's rights in respect of any other billing, the payment of which may then or thereafter be due.

26.10 Contractor shall maintain complete and correct records of all information on which Contractor's invoices are based upto 2(two) years from the date of last invoice. Such records shall be required for making appropriate adjustments or payments by either party in case of subsequent audit query/objection. Any audit conducted by Company of Contractor's records, as provided herein, shall be limited to Company's verification (i) of the accuracy of all charges made by Contractor to Company and (ii) that Contractor is otherwise in compliance with the terms and conditions of this Agreement.

26.11 **SET-OFF**: Any sum of money due and payable to the Contractor (including Performance Security refundable to them) under this or any other Contract may be appropriated by OIL and set-off against any claim of OIL (or such other person or persons contracting through OIL) for payment of a sum of money arising out of this contract or under any other contract made by the Contractor with OIL (or such other person or persons contracting through OIL).

**27.0 WITHHOLDING:** Company may withhold the whole or any part of the amount due to Contractor, after informing the Contractor of the reasons in writing, on account of subsequently discovered evidence in order to protect Company from loss on account of :-

a) For non-completion of jobs assigned as per Section-II.
b) Contractor's indebtedness arising out of execution of this Contract.
c) Defective work not remedied by Contractor.
d) Claims by sub-contractor of Contractor or others filed or on the basis of reasonable evidence indicating probable filing of such claims against Contractor.
e) Failure of Contractor to pay or provide for the payment of salaries/ wages, contributions, taxes or enforced savings with-held from wages etc.
f) Failure of Contractor to pay the cost of removal of unnecessary materials, tools, or machinery from the work site.
g) Damage to another contractor's man and materials working for the Company.
h) All claims against Contractor for damages and injuries, and/or for non-payment of bills etc.
i) Any failure by Contractor to fully reimburse Company under any of the indemnification provisions of this Contract.

If, during the progress of the work Contractor shall allow any indebtedness to accrue for which Company, under any circumstances in the opinion of Company may be primarily or contingently liable or ultimately responsible and Contractor shall, within five days after demand is made by Company, fail to pay and discharge such indebtedness, then Company may during the period for which such indebtedness shall remain unpaid, with-hold from the amounts due to Contractor, a sum equal to the amount of such unpaid indebtedness.

Withholding will also be effected on account of the following:-

i) Order issued by a Court of Law in India.
ii) Income-tax deductible at source according to law prevalent from time to time in the country.
iii) Any obligation of Contractor which by any law prevalent from time to time to be discharged by Company in the event of Contractor's failure to adhere to such laws.
iv) Any payment due from Contractor in respect of unauthorized imports.

When all the above grounds for withholding payments shall be removed, payment shall thereafter be made for amounts so with-hold.

Notwithstanding the foregoing, the right of Company to withhold shall be limited to damages, claims and failure on the part of Contractor, which is directly/indirectly related to some negligent act or omission on the part of Contractor.

**28.0 APPLICABLE LAW:**

28.1 The Contract shall be deemed to be a Contract made under, governed by and construed in accordance with the laws of India for the time being in force and shall be subject to the exclusive jurisdiction of Courts situated in Dibrugarh/ Guwahati.

28.2 The Contractor shall ensure full compliance of various Indian Laws and Statutory Regulations, to the extent applicable, as stated below, but not limited to, in force from time to time and obtain necessary permits/licenses etc. from appropriate authorities for conducting operations under the Contract:

a) The Mines Act 1952 - as applicable to safety and employment conditions
b) The Minimum Wages Act, 1948
c) The Oil Mines Regulations, 1984
d) The Workmen's Compensation Act, 1923
e) The Payment of Wages Act, 1963

f) The Payment of Bonus Act., 1965
g) The Contract Labour (Regulation & Abolition) Act, 1970 and the rules framed thereunder
h) The Employees Pension Scheme, 1995
i) The Interstate Migrant Workmen Act., 1979 (Regulation of employment and conditions of service)
j) The Employees Provident Fund and Miscellaneous Provisions Act, 1952
k) Assam, WB & Bihar Tax Act including VAT & Entry Tax Act
l) Service Tax Act
m) Customs & Excise Act & Rules
n) Environment Protection Act
o) Public Liability Act

28.3 The Contractor shall not make Company liable to reimburse the Contractor to the statutory increase in the wage rates of the contract labour appointed by the Contractor. Such statutory or any other increase in the wage rates of the contract labour shall be borne by the Contractor.

**29.0 SUBSEQUENTLY ENACTED LAWS**: Subsequent to the date of issue of Letter of Award if there is a change in or enactment of any law or change in application or enforcement or interpretation of existing law by any governmental authority or public body, which results in addition/ reduction in cost to Contractor on account of the operation contemplated under the Contract, the Company/Contractor shall reimburse the Contractor/pay Company for such additional/reduced costs actually incurred/saved by Contractor, subject to the submission of documentary evidence by Contractor/Company.

**30.0 ROYALTY AND PATENTS**: Each party shall hold harmless and indemnify the other from and against all claim and proceedings for or on account of any patent rights, design, trade mark or other protected rights arising from any use of materials, equipment, processes, inventions and methods which have not been imposed on the attending party by the terms of the contract or the specifications or drawings forming part thereof.

**31.0 WAIVER & AMENDMENTS**: It is fully understood and agreed that none of the terms and conditions of the contract shall be deemed waived or amended by either party unless such waiver or amendment is executed in writing by the duly authorized agents or representatives of such party. The failure of either party to execute any right of termination shall not act as a waiver or amendment of any right of such party provided hereunder.

**END OF SECTION – I**

## Part-3, Section-II

## SCOPE OF WORK AND TERMS OF REFERENCE

**INTRODUCTION:**

OIL INDIA LIMITED (OIL) a Government of India Enterprise, is a premier Oil & Gas Company engaged in Exploration, Production and Transportation of crude oil & natural gas with its Headquarters at Duliajan, Assam. The Company has operating interests across the country as well as in several foreign countries. The major Oil & Gas producing assets of the Company are located in Upper Assam Basin of North East India. The Operational area is spread over a radius of 60 km from headquarters at Duliajan. Duliajan is connected by Air with nearest Airport at Dibrugarh, 50 km away.

OIL proposes to construct two (02) number of Production facilities primarily for separation of Oil, Gas & Water and processing of non-associated & associated gas in its producing field at Nadua and East Khagorijan. The installation will be constructed on **Modular design concept with emphasis on skid mounted pre-fabricated facilities minimizing civil construction work at site to the extent** possible as per functional specifications of various process packages. Instead of permanent civil buildings, containerized offices/structures will be preferred. **Pipelines from Oil & Gas wells to the proposed plant and transfer lines for transporting Dry Crude, treated Gas, treated water from the proposed plant to outside are not in the Project scope**. **Procurement of LAND and construction of boundary wall in the land is not in the project scope and will be done/arranged by OIL separately.**

### 1.0 Description for Modularized Plant

Oil India Limited is planning to develop a new concept of developing modularized plant at Nadua and East Khagorijan located in Dibrugarh and Tinsukia districts of Assam. Modular design with Containerized office rooms are considered which will include Operator cabin, PMCC container, Instrument / Control cabin, Guard hose, Toilet bunk etc.

All the equipment/piping/instrumentation will be supplied as a skid and the interconnection between the skids will be done at site. OIL has decided to select an EPCM contractor for Providing Engineering, Project Management, Procurement & Material Management, Inspection & Expediting Services and Construction Supervision Services for Installation of Modularized Processing Facilities at NADUA and East Khagorijan.

## 2.0 FACILITIES INVOLVED IN GGS AT EAST KHAGORIJAN & OCS AT NADUA:

Nadua and East Khagorijan field's needs to be designed to transport the process and utility facilities as modularized skids transported to site via standard size containers. Processed crude oil is stored and transferred to Export oil pipeline. The separated gas is sent to Export gas pipeline. The Produced water is treated and sent to disposal / injection wells. Few of the expected Process facilities involved in NADUA & East Khagorijan are listed below:

### 2.1 Modularized Facilities:

- HP/LP Production and Test Manifolds.
- Manifold for Non associated Gas wells (only for East Khagorijan).
- Test separator with Test Tanks
- Crude oil separation & stabilization system.
- Produced water treatment system.
- Flash Gas compression Package.
- Fuel gas treatment System.
- Trunkline KOD.
- Gas Metering.
- Oil Metering.

The following minimum utilities are required:

- Fire fighting system.
- Instrument air / Utility air system.
- Power generation system.
- Fuel gas system.
- Water supply system.
- Chemical injection system.
- Effluent water Treatment System.
- Nitrogen generation system.
- Hot Oil system.
- HP and LP flare system.
- Closed drain system.
- Control Rooms.
- HVAC system or Air Conditioning system.
- Operator Cabin.
- Amenity Cabin.
- Guard House.
- Toilet bunks, etc.,

**2.2 Permanent Facilities:**

- Crude Oil Storage Tanks including off-spec Tanks.
- Produced Water Storage Tanks including off-spec Tanks.
- Fire Water Storage Tanks.
- Tank Dyke.

**Note: Tanks also will be preferred to be Modular (if possible).**

## 3.0 MODULAR PLANT DESIGN CONCEPT:

The process facilities involved in the Nadua and East Khagorijan plant to be pre-fabricated and transported in containers. The design of the equipment's should be selected in such a way that the equipment will be placed in the standard size of the container. It should involve designing the systems into portable skids. These skids should be self-contained units which can be stacked or rearranged in different formations to add to or form entire plants.

The Containerized facilities shall be transportable via roads of the Assam and to the plant locations. The regulation of road safety shall be met by the package supplier.

The vessel sizes are to be sized based on the adequacy of locating inside the container. If any vessel needs to be designed higher than the recommended container vessel size, either the vessel shall be splitted and flanged to erect as one vessel at site or the vessel count can be increased (e.g. 2 number of vessel instead of 1) based on the allowable size of the container vessel.

Piping can be pre-fabricated in package supplier's facility and transported to the site. The skid fabrication at site should be minimized as low as possible by the package supplier. All the associated facilities of the package skid such as instrumentation, piping, valves, control system and electrical items etc., should not be fabricated at site.

Due to high volume of crude storage tanks, OIL may decide to go with permanent storage facility. The storage tanks then shall be erected at site. However, OIL will still prefer to have the tanks to be designed as modular pre-fabricated unit. The same will be decided by OIL during detail engineering stage.

Apart from processing facilities, control rooms, amenity blocks, Guard house, Toilet bunks, Operator cabin, etc., shall be containerized and no permanent building is allowed.

Civil work shall be done separately based on the inputs given by the package supplier. Civil work includes the construction of internal roads, leveling and concrete basement for the processing facilities, tank dyke construction etc.

Remaining steel work such as inter-connection, hook-ups of skids, installation will be done separately based on the inputs given by the package supplier.

**3.1 Objective:** OIL intends to hire an **EPCM (Engineering Procurement Construction Management Consultant)** for managing the project starting from preparation of FEED, carrying out detail engineering, conducting safety studies, soil testing and topographical surveys, preparation of multiple tender packages for procurement, installation and commissioning of various packages,

preparation of tenders for carrying out site construction activities, project management, site supervision and conducting PGTR for the complete facilities. The engineering (basic & detail), procurement and construction management for the entire plant at both the locations will be the responsibility of the EPCM including PGTR.

The EPCM contractor will be primarily responsible for:

**a) <u>Design (this includes producing the basic engineering/FEED and developing the detailed design) for both the plants</u>:**

The EPCM contractor will be fully responsible for the preparation of the FEED and the complete detailed engineering in accordance with normal industry and good engineering practices. The EPCM contractor is responsible for ensuring that the completed plant design will meet the required process performance. Thus, the EPCM Contractor should co-ordinate his efforts with those of the other parties involved to ensure that the engineering and design of the project is in full compliance with the requirements of the approved project specifications, procedures and safety guidelines. The EPCM Contractor will have overall responsibility for establishing and maintaining both the design and construction interfaces with vendors and construction contractors to the extent necessary to ensure that their work is performed to the required level and quality, and to a schedule which is compatible with the requirements of the overall project schedule (project must be completed at both the locations within 26 months from the date of LOA to EPCM). The EPCM contractor will be responsible for overall co-ordination of the design and construction process although the EPCM contractor may also appoint a lead contractor amongst the various trade contractors that will take some responsibility for on-site construction co-ordination – but in that case the EPCM contractor must ensure their site presence with its own construction management team.

**b) <u>Procurement of necessary materials and equipment for both the plants</u>:**

EPCM contractor's role will be to finalize the strategy for the construction and procurement of equipment and materials and then implement that strategy to ensure project completion at both the locations simultaneously within the 26 months' time period. The strategy or the chosen options must be finalized by the time the FEED has been produced.

The EPCM contractor will finalize/letting the major works packages to various trade contractors, advising on the terms of those packages, and putting the contracts in place. The timing of the letting of the packages is a crucial factor in the success of the project – letting a package too early when there is insufficient information to obtain a lump sum may lead to a series of cost reimbursable trade packages or risks of large variation claims on lump sum packages - letting the packages too late runs the risk of

failing to meet the overall project schedule. EPCM contractor must take note of the same.

During the FEED stage, the EPCM Contractor must ensure that, for the project schedule to have a chance of being met, long lead items of equipment must be ordered ahead of the appointment of the contractors and often ahead of the detailed engineering being completed. The EPCM contractor will be responsible for the preparation of comprehensive invitations to tender and then for awarding of contracts for delivery and construction services to be rendered by third parties. The EPCM contractor will then be required to carry out a careful analysis of the offers received and to make a recommendation of the technical and economic advantages and disadvantages involved in each offer, and proposals for the awarding of contracts, with reasons, for the Owner's approval. The EPCM contractor will then prepare the commercial and technical agreements. The terms and conditions of such agreements must be agreed with the Owner in advance. EPCM contractor must prepare the standard contract documents and ensure that these are suitable for the type of procurement being used. A series of lump sum contracts may be required to be put in place by the EPCM contractor, on the Owner's behalf, if required. These contracts will be direct agreements between the Owner and the trade contractors. It is crucial that the terms of these contracts are properly co-ordinated with one another and protect the Owner's interests. The Owner may face claims during the currency of the works that it wishes to pass on to either the EPCM contractor or to the defaulting trade contractor responsible – the contracts must be drafted in such a way that this is made possible.

**c) <u>Management and administration of the construction contracts for both the plants</u>:**

The EPCM Contractor will be responsible for the overall management and supervision of all construction activities. This will entail managing, supervising and co-ordinating all of the construction contractors to ensure that the work is carried out in a safe manner and in compliance with the demands of the project schedule, to a quality which meets the standards required by the project.

This will include organization and supervision of the safety management on the construction site and comprehensive quality assurance, the securing of evidence for any defective third party services, including the consequences arising there from, the establishment of facts in the event of default and defective services, including complete documentation, so that the Owner is protected against claims from trade contractors.

**d) <u>Cost Control</u>:**

The EPCM contractor will be responsible for developing budgets for the construction works and procuring, managing and administering the construction contracts in accordance with those budgets. The EPCM

Contractor shall be responsible for monitoring and reporting on anticipated outturn costs for the Project. Costs shall be estimated, budgeted, reported, forecast and controlled throughout the project period by the Contractor. The Contractor must implement cost controls in every phase of this Project showing the development of the expected outturn costs. In particular, after the completion of the detailed engineering for each section of the works, the costs determined for this are to be calculated, to be compared with the costs previously estimated, and to be submitted in writing to the Owner. As soon as the EPCM Contractor recognises in the course of the services to be performed matters which indicate that the outturn costs may exceed the budget, the EPCM Contractor must inform the Owner thereof immediately in writing, indicating the reasons, even if the EPCM Contractor is not at fault for the additional cost. Thereafter, the EPCM Contractor shall immediately develop proposals and measures in the shortest possible time to remove or minimize the cost excess, to inform the Owner thereof in writing, and provide all necessary information and data which make it possible for the Owner to take an appropriate decision on the further manner of proceeding.

**e) <u>Schedule Control</u>:**

The EPCM contractor will be responsible for managing the co-ordination of the various trade contractors in an attempt to ensure that the project programme is met. The development and agreement of an overall programme for the works is the responsibility of the EPCM contractor. The detailed preliminary project schedule of 26 months from the date of LOA to EPCM is being prepared by OIL and will be shared with the successful bidder afterward of LOA. EPCM will have to work further on this schedule and present to OIL during project kick-off meeting. The schedule should depict the final completion date of the project and show details of when detailed design will start/finish and the schedule for the procurement and completion of the major packages, testing and commissioning etc. The EPCM contractor has to accept total responsibility for achieving this project schedule by ensuring expected performance of the various works package contractors. Being responsible for the design and procurement process, means that delays by the EPCM contractor are likely to seriously jeopardize the project schedule, EPCM must try to avoid this.

## 3.2 <u>Nadua Fields:</u>

The NADUA oil field is located near Dibrugarh town in Assam. The field is presently producing from 04 Nos. of wells through a QPS (Quick Production Setup). Considering the potential of the field, it is envisaged that Oil production is expected to rise to a level of 1200 KLPD from 15 HP wells (04 wells + 11 future wells), 15 LP wells (15 future wells). Associated Gas is expected to be around 0.1 MMSCMD. Oil India Limited proposes to construct an Oil Collecting Station (OCS) at NADUA to cater to the production in that area. It is also expected that the field will produce about 800 KLPD of water

along with the 1200 KLPD of crude, so the plant design will be for handling 2000KLPD of total well fluid.

### 3.3 East Khagorijan Fields:

The East Khagorijan oil field is located near Dibrugarh town in Assamat a location approximately 200m south (aerial distance) of LoC# TAI at $27^0$32'N $95^0$09'E approx. elevation 121 M MSL. The field is presently producing from 02 Nos. of wells through a QPS (Quick Production Setup). Considering the potential of the field it is envisaged that Oil production is expected to rise to a level of 1000 KLPD from 06 HP wells (02 wells + 04 future wells), 06 LP wells and 06 Non Associated Gas wells. Associated Gas is expected to be around 0.3 MMSCMD. The East Khagorijan oil field also having the huge amount of non-associated gas potential and it is expected to produce about 2 MMSCMD of non-associated natural gas from this area. It is also expected that the field will produce about 800 KLPD of water along with the 1000 KLPD of crude, so the plant design will be for handling 1800KLPD of total well fluid Oil India Limited proposes to construct a Group Gathering Station (GGS – OCS + FGS) at East Khagorijan to cater to the production in that area.

## 4.0 SCOPE OF WORK:

Scope of Work comprises of design, creation of process facilities, requisite utilities etc. in various modules and other infrastructure for two standalone integrated surface production set ups for production from reservoir of crude oil and natural gas complying with all oil field safety norms (DGMS, OISD etc.) and applicable government laws in Nadua and East Khagorijan.

Oil India Limited requires the services of EPCM (Engineering Procurement Construction Management Consultant) to provide Services for creation of one no. of OCS (Oil Collecting Station) and one number of Group Gathering Station (GGS) at Nadua and East Khaogrijan respectively in accordance with the given Terms of Reference. This section establishes the scope and schedule for the Work to be performed by the EPCM and describes the guidelines, instructions etc., which the EPCM shall satisfy or adhere to in the performance of the Work. The MINIMUM FACILITIES ENVISAGED for the stations covering different disciplines has been shown in the other part of the document to facilitate the Consultant only to visualize the Work requirement. The project definition, process details and Process design basis is also provided to facilitate the EPCM to visualize the Work requirement for the two plants. However, EPCM shall design the facilities based on current practice followed in the upstream oil & gas industry and in consideration of the statutory regulations like OMR (Oil Mines Regulations), Indian Boiler Act guidelines, IE Rules OISD(Oil Industry Safety Directorate),DGMS (Director General of Mines and Safety), Ministry of Environment and Forest (MOEF), Assam Pollution Control Board and any other relevant laws, by-laws, or Acts in force. Hazardous area layout

drawing as per DGMS and OISD113 guidelines needs to be prepared for the installation by EPCM which should be duly approved by OIL. All electrical and instrumentation items that will be installed in the hazardous area as per the approved hazardous area layout drawing must have DGMS approval. The facilities that shall be provided in the stations shall be latest, suitable, appropriate & proven technology. The proposed installation will be designed to meet all the latest and relevant standards for QHSE-ISO and ISRS (International Safety Rating System) etc. The facilities proposed to be set up, would be based on latest process control system available including online monitoring and control facility for the entire plant and measurement for fluid at inlet and outlet.

**4.1** **EXECUTION METHODOLOGY**: The entire project will be designed, executed by EPCM in the following phase manner.

**Project Execution Methodology will be: (per location)**

- EPCM will do basic & detail design for the entire facility and arrange for preparation of multiple techno-commercial tenders (parallel) for procurement of packages and construction at site including soil testing, topographical survey and all required safety studies.
- First set of tenders will be for procurement of the plant packages on modular type and installation/integration and commissioning at site. Depending on requirement there can be more than one tenders for procurement of different packages and accordingly EPCM will ensure suitable package contractor for integration of these packages at site.
- Second set of tenders will be for construction (civil and mechanical) at site – All civil works including land filling & development, internal roads, foundation for vessels etc.- drawings for the same will be provided by EPCM. Here also there can be more than one tender to manage the site activities, one for civil construction activities and one for mechanical construction activities. Mechanical activities will call for jobs like fabrication of tanks, hook-up jobs, piping jobs etc.
- PGTR will be the responsibility of EPCM
- Complete Procurement management will be in EPCM scope
- Project management including site supervision/construction management will be by EPCM scope
- EPCM will also prepare tenders for O&M of the two plants for five years duration. The O&M contractor must be given LOA before start of plant PGTR.

The above methodology will be common for project in the second location. All jobs will go on in parallel mode in both the locations to complete the project in time. EPCM should plan for resource allocation while quoting in such a way that they will have to manage project execution for two plants (at two different geographical locations) in parallel to complete both the plants within the timeline of 26 months from date of issue of LOA to EPCM.

**4.2 Few of the jobs that will be part of the EPCM scope are as below:**

a) QRA study, Escape, Evacuation and Rescue Analysis, Hazard and Operability (HAZOP) study, Environmental Risk Assessment study and SIL study for the installations as per Terms of reference (below).

b) Basic Engineering & Front End Engineering Design (FEED), Detail Engineering to establish the system requirements considering entire life of the field. EPCM shall also carry out all studies as per below details. Detail Soil Investigation, Soil Liquefaction Effect and Topographical survey, Detail Contour Map, Collection of Metrological data from Legal Metrological Departments. Reports of the same shall be used for carrying out Basic/Detail Engineering and FEED.

c) Latest, Suitable, appropriate & proven Technology selection from available worldwide and recommendation thereof

d) Presentation of computer animated 3D Walkthrough model to OIL based on process flow concept as per Basic Engineering & FEED, for design visualization of entire plant layout which they conceive, their milestones and operations of the units with focus on critical processes.

e) Draw out plan and training program for training of OIL's personnel in the Operation and Maintenance of the new plant and technology of the installations.

f) Submission of Basic Engineering & FEED result, Detail engineering to OIL and taking approval from OIL.

g) Perform above giving due cognizance to Govt of India, Ministry of Environment and Forests guidelines. Perform necessary works/ initiate approvals, as shall be required, per the above directive from MoEF before execution of the Project.

h) Formulation of Health, Safety and Environmental Manual as per prevailing international standards and statutory guidelines and in line with prevailing HSE Policy of OIL and submission to OIL for approval.

i) Finalization of Project schedule (Bar Chart of the whole project) considering various facets of the job; preparation of BOM (bill of materials) and cost estimates for the whole project and submission to OIL for approval.

j) Preparation of package Tender documents for procurement and construction and submission of the same for OIL's approval as per the technology selected based on Basic/Detail Engineering & FEED and other requirements for Constructing and Commissioning of the plants and also commercial requirements for obtaining competitive bids from various bidders. The tender shall ask the bidders to submit detailed Engineering (if the same is not provided by EPCM) for the various aspects viz. equipment, construction, structural, piping, mechanical, civil, electrical, instrumentation etc. But OIL will prefer EPCM to carry out detail engineering for all packages to the extent possible in order to complete the project as per the planned schedule.

k) Preparation of tender for five years O&M of the two plants with detailed

internal estimate

l) Preparation of the detailed internal estimate for various package Tenders for procurement and construction and submit to OIL.

m) Submission of the tender documents to OIL; fulfilling all aspects of jobs required for construction of the installations in both hard (5 copies duly printed in colour and hard binder) and soft copies; publication of Invitation for bid (IFB) in press through OIL's advertising agent (selection of Newspaper and expenses of publications will be to OIL's account) and uploading of the tender document in the e-portal of OIL along with OIL's engineers for e-tendering.

n) Intimation to the prospective bidders drawing their attention to the tender; organizing pre-bid conference and clarifying to prospective bidders. The pre-bid conference shall be held at OIL's office at Guwahati which shall be attended by OIL's engineers along with EPCM Contractor. Necessary clarification to prospective bidders shall be provided by the EPCM Contractor. The OIL shall bear all the expenses for organizing and holding the Pre-bid conference (However, to and fro travel and lodging & boarding expenses of EPCM's personnel to Kolkata for attending the prebid conference shall be arranged and borne by EPCM.) Opening of tenders (both Technical & Commercial) will be done at OIL's office at Duliajan only.

o) Evaluation of bids for technical and commercial compliance, seeking clarifications from bidders, if any, Holding discussions (techno-commercial) and negotiations with the bidders.

**i.** Submit the scrutinized bids for OIL's comments/approval.

**ii.** Selection of package vendor/Contractor jointly with OIL and assisting in awarding Contract to OIL.

After awarding of Contract to the various package vendors/contractor, EPCM shall undertake the following. However, OIL shall have the right to verify, cross check the same from time to time.

p) Carry out preparation of 3D Computer modelling with simulation of the installations by collecting all inputs from various package vendors/contractor on PDS (Plant Design system) platform.

q) Carry out preparation of updating of construction sequences in the 3D computer animated model with simulation & Life Cycle Data sheet by collecting all inputs from various package vendors/contractor. EPCM needs to provide PDS software with assurance for maintenance support from the OEM/authorized dealer for minimum 5 years.

**i.** Presentation to OIL with details.

**ii.** Inspection and expediting services.

**iii.** Construction supervision and complete project management.

**iv.** Adherence to the TOR requirements and control.

**v.** Monitor and control the project schedule.

**vi.** Ensure quality control and safety of operation and certify the jobs executed by various package vendors/contractor.

**vii.** Ensure adherence to statutory guidelines followed in upstream oil industry.

**viii.** EPCM Contractor shall arrange to provide statutory approvals for individual equipment / instrument through package vendors.

EPCM shall ensure that all equipment's / instruments falling under Zone-1 & Zone-2 of hazardous area have statutory approvals as required by DGMS.

However, EPCM shall obtain the following statutory approvals.

1. Overall DGMS approval for the installations.

2. All other approvals required as per MoEF Guidelines.

EPCM shall prepare all the documents associated with obtaining approval from the Competent Statutory Body and shall submit the documents to OIL for final approval and acceptance. Competent authority from OIL shall then sign the documents and hand over the same to EPCM Contractor for submission to the Competent Statutory bodies. In case any clarification is sought by statutory bodies then EPCM shall assist OIL in clarifying the same. This may also include visit of representative of EPCM to the office of the statutory bodies situated in various locations in India.

**ix.** Conducting thorough competent organization, training of OIL personnel for operation & maintenance of the Plants.

r) Documentation, preparation of equipment log book, preparation of Safe operating Procedure for all equipment and various facilities including and not limited to civil, mechanical, electrical, instrumentation.

s) Finalization & completion of as built live 3D computer animated walkthrough model of the installations by collecting all inputs from various package vendors/contractor and submission to OIL.

t) Submission of list of BOM (Bill of materials) in soft and hard form against all materials &equipment's installed at the installations along with quantities, manufacturer details, technical specifications etc.

u) Pre-commissioning of individual process blocks and equipment's along with various package vendors/contractor and submit commission report to OIL.

v) Successful continuous Trouble free Trial run of the Plant along with all

installed equipment's for 1 (one) month by EPCM; EPCM shall submit final certificate of successful trouble running of the whole plant for 1 months.

In order to carry out the jobs as detailed above on a fast track, it is necessary that accurate and optimum specifications based on Basic Engineering & FEED are drawn before implementation.

It is a strict time bound Work and will require best efforts and deployment of best qualified experience personnel from the EPCM.

**4.3 SCOPE OF SERVICES FOR EPCM:**

**STUDIES TO BE PERFORMED**: The following studies are to be carried out by the EPCM and necessary documentation/reports are to be submitted to OIL and other statutory bodies and requisite approval is to be obtained.

A) **HAZOP STUDY**:

Detailed Hazard and Operability (HAZOP) study on updated P & IDs of the main process of different units, utility and support systems handling hydrocarbons or considered critical from operating view point should be undertaken with the aim to check the adequacy of the instrumentation, existing safety provisions and to identify other operation related problems / hazards. Special attention should be given to check the control philosophy and the Safety Instrumentation System presently been adopted in relation to different oilfield installation and downstream consumers. Start-up operations, stoppage and maintenance procedure being followed should also be reviewed. Detailed Hazard & operability (HAZOP) study shall be carried out on the proposed design of the installations and a report shall be submitted as per best practices followed in the industry.

B) **QUANTITATIVE RISK ANALYSIS (QRA)**

Quantitative risk assessment of the entire proposed plant and surrounding to be carried out. Report to be submitted to OIL in both soft and hard formats.

C) **ENVIRONMENTAL RISK ASSESSMENT STUDY**: Summarize the results in terms of risk to plant personnel and to environment in a form suited to the problems.

(i) Risk to the plant personnel should be plotted / presented in a form of F-N curves while risk to public in terms of CSO risk curves. Number of fatalities per year of PLL (Potential Loss of Life) for the plant as a whole should also be evaluated and presented in a suitable form.

(ii) Risk to environment should be presented in an internationally accepted form. Internationally recognized acceptability criteria should be adopted for evaluation of results.

D) **SIL (Safety Integrity Level) study of Plant.**

Detail SIL (Safety Integrity Level) study based on the above HAZOP & Risk analysis study results/data has to be carried out to comply IEC61511 & IEC61508 standard requirements. The SIL study should determine all the safety functions that will be required to achieve risk reduction to "ALARP" (as low as reasonably practicable level) and then the requisite SIL level should be assigned to each safety function. The SIL study should determine the safety requirement specifications (SRS) for the proposed safety instrumented system for the entire facility. SIL study has to be carried out through certified "Functional Safety Professional/Experts".

E) **ESCAPE, EVACUATION AND RESCUE ANALYSIS**: An escape, evacuation and rescue analysis shall be carried out with the following objectives:-

(i) Method of escape and evacuation should not expose the evacuees to a higher level of risk than the emergency situation itself present.

(ii) Method of rescue should enable the rescuers to search locate and remove persons from the plant and its neighborhood to a place of safety without causing injuries or worsening any injuries already sustained.

(iii) EPCM to provide situation based Disaster Management Plan for the installation.

**NOTE**:

(i) Environmental Impact Assessment (EIA) study as well as approval from MOEF and Pollution Control Boards will be done by OIL.

(ii)The above studies to be done by EPCM may be sub-contracted through parties/agencies with due approval from OIL based on PTR and past work done track record of these parties/agencies.

F) **BASIC ENGINEERING & FRONT END ENGINEERING DESIGN**: The Engineering Procurement Construction Management Consultant(EPCM) appointed for the project shall have the primary responsibility of carrying out Basic Engineering & Front End Engineering Design (FEED) as well as Detail engineering as per the guidelines set by OIL and Govt. statutory bodies, laws, by-laws or Acts mentioned in Clause 2.0, taking necessary approvals and permissions from the statutory bodies, preparing cost estimates, technical specification (NIT specs) and for evaluation of bids and ensuring quality of procurement items and workmanship of construction in line with sound established and safe engineering practices, standards and codes, completing the project as per the terms and conditions of the Contract and to the satisfaction of OIL and commissioning the project within the agreed time schedule. OIL will co-ordinate and monitor the project execution by the EPCM Contractor and give basic guidelines of the Company's requirements time to time.

Front End Engineering Design (FEED) i.e. design of the process together with its control and automation, safety, environmental and other systems will

encompass process design and analysis, conceptual design and basic engineering phases of the project life cycle. The layout & installation should provide optimum space for further expansion in terms of plant storage and operating capacity. As land is a constraint for OIL the design of the layout should be made in such a manner the minimum land is utilized for the installations. OIL also advises EPCM consultant to design stacked equipment, piping considering statutory requirements. The Basic Engineering & FEED data will be submitted to OIL with Project cost estimation & Plant layout. Those will be approved by OIL finally. All the drawings should preferably be finalized by EPCM during Basic Engineering & FEED except for what will be prepared during Detailed Engineering phase (viz. fabrication drawings, construction drawings foundation, steel frame, construction drawings for electrical equipment, instrumentation and piping, vents/drains, Hook ups, Loops, vendor data etc.). Following on from Basic or FEED engineering Work, EPCM Contractor will also develop Detailed Engineering for input to various package vendors and construction contractors.

EPCM will give a presentation of computer animated AEC (Architectural, Engineering and Construction) Walkthrough to OIL which EPCM conceive based on Basic Engineering & FEED, for design visualization of entire plant layout with focus on critical processes.

EPCM must provide Bar Chart indicating all the activities and time line including major milestones for all project Phases separately as per attached project schedule.

G) **PROCESS**: It shall include,

(a) To establish operation of the system based on agreed process philosophy and approval from OIL.

(b) To establish final design parameters/basis and limit of the system.

(c) To establish latest, suitable, appropriate & proven technology and development of Good Practice Guidelines.

(d) Preparation of lay out diagram based on conceptual flow diagram and site map with due consideration to the statutory requirements followed in upstream oil sector including OMR, OISD and other Govt. laws and by laws as applicable.

(e) Preparation of Process Flow Diagram showing operating conditions, Material Balance, Heat Duty, Composition of streams etc.

(f) Preparation of Piping and Instrumentation Diagram.

(g) Preparation of Process Package operating summary of design basis, brief description of plant, measurement-control-automation, ground flare system, effluent disposal system, P&ID, PFD, Plot Plan etc., utility requirement and fire protection & fighting system as per statutory requirements, disaster management plan, guaranteed plant performance, turned down conditions etc., Equipment Layout, Line Schedule, Instrument Schedule etc.

(h) Preparation of Plant operation manual complete with process control safety measures and procedures during commissioning and operation, etc.

(i) Escape, Evacuation and Rescue Analysis; environmental protection scheme /systems, HAZOP, HAZIP, and SIL study of the plants.

(j) Preparation of time schedule for implementation.

(k) Review/approval of drawings/documents of turnkey supplier during execution as necessary.

H) **EQUIPMENT ENGINEERING**: It will include

(a) Formulation of design philosophy, and approval from OIL.

(b) Preparation of drawings as per Basic Engineering & FEED requirement, defining major equipment, giving the layout of equipment with sections and elevations, wherever necessary for equipment engineering as per the statutory guidelines followed in upstream oil industry.

(c) Define scope and finalize engineering specifications based on process data sheets for all static and rotary equipment.

(d) Provide specifications / standards for all equipment and machinery to be procured as part of turnkey supply considering system and statutory requirements.

(e) Finalize agreed specification / standards for equipment/machinery to be incorporated in the Contract of turnkey supplier in consultation with OIL.

(f) Review/approval of drawings/documents of turnkey supplier during execution as necessary.

I) **MECHANICAL AND PIPING**: It will include

(a) Provide information applicable codes / standards for pipe classification.

(b) Pipe Adequacy sizing and Stress analysis as required for critical piping.

(c) Design of all equipment like Vessels, Tanks, dehydrators, Heat Exchangers. Pumps and engines, instrumentation control and monitoring and steam generation and distribution etc. required for the proposed system.

(d) Preparation of General Layout Plan includes Plot Plan for the plant with position dimensions of the major equipment/systems as per provisions of the Mines Act and OISD and DGMS guidelines.

(e) Preparation of detailed technical specifications including data

sheets, tender drawings, basic layout, estimated quantities of execution for various contracts including civil, structural, equipment, piping, electrical, instrumentation as required for the process and statutory guidelines.

(f) Provide final agreed specification/standards for piping engineering to be incorporated in Contract of turnkey plant supplier in consultation with OIL.

(g) To provide corrosion control measure in all equipment's & piping

(h) Review/approval of drawing/documents of turnkey plant supplier during execution as necessary with respect to engineering performed and statutory requirement.

J) **INSTRUMENTATION**: The detail scope of Work should include:

a) Preparation of controls & instrumentation system design philosophy as per statutory requirements of OMR, DGMS, OISD and other Govt. laws and by-laws for the entire installations and also as per the below specified minimum codes and standards (national & international).

a.1) **STANDARDS AND SPECIFICATIONS**

Latest editions of the codes as furnished in Annexure-A shall be followed in addition to the Codes & Standards mentioned in specifications of the bid.

a.2) **Hazardous Area system requirements:**

- All instruments, junction boxes and cable glands and Local Control panels shall be certified for use in hazardous area as per area classification drawing (based on OMR guidelines) of the installation where the project will be installed. The instrumentation shall be certified intrinsically safe in general, as per IEC-79.
- However, field switches and Solenoid Valves shall be certified flameproof for use in classified area as applicable (IS-2148 / IEC-79).
- Purging of Local Control Panel and other enclosures shall not be allowed. Moreover all field instruments shall also be Weatherproof to IP 65 as per IS 2147 / IEC 529. All junction boxes, cable glands and local panels etc. shall also be weatherproof to IP 65 as a minimum. Junction boxes, cable glands and accessories shall be weather proof only when connected to intrinsically safe circuit and shall be weather proof and explosion proof / flame proof to IP 65 and NEMA-7 or equivalent IS standard, when connected to explosion proof instruments / circuits. The certification for use in hazardous areas shall be as follows and accordingly to be provided through EPC Contractor:

a) All Junction boxes/ Instruments/systems etc. to be installed in hazardous area Zone 1 & Zone2 shall be certified DGMS India.

b) Approvals other than above shall neither be offered nor will these be acceptable.

c) DGMS approval of the Instruments is a statutory requirement and is required over & above certification by ATEX / FM/UL/ CSA/ CENELEC/ BASEFA / PTB.

a.3) **Instrumentation installation standards:**

a) The design and installation of instruments shall be generally in accordance with ISA / API recommended practices and other applicable standards like ASI, IBR etc. Material specifications and practices shall, in general, conform to appropriate ASTM, NACE (wherever applicable) or equivalent standards. All standards, code of practice shall be of the latest edition.

- All instruments and equipment's shall be suitable for use in hot, humid and tropical industrial climate in which corrosive gases and / or chemicals may be present. As a minimum, all instruments and enclosures in field shall be dust proof, weather proof to IP65 and secure against the ingress of fumes, damages, insects and vermin. All external surfaces shall be suitably treated to provide anti corrosion protection against plant atmosphere.
- Location of process connections shall be either from the side or from the top of the process equipment but not from the bottom. This requirement is applicable to both pipes and vessels. The location of lower side connection shall be high enough to prevent plugging due to any suspended solids. In addition, the connections shall be short, vertical or horizontal and without any pockets.
- Materials of construction of instruments shall be consistent with temperature, pressure, corrosion conditions and other process requirements. In case where suitable material procurement is not feasible/available, diaphragm seal shall be provided.
- The complete instrument system shall be designed for safe operation, by using normally closed contacts which open on fault conditions.
- Mounting of Instrument / JB on the stanchion or instrument support shall be at the height of 1.3 meter from the finished grade / floor level.

- EPCM to note that the atmosphere external to the items is classified as hazardous to Area NEC Class-I, Division-1, Group C, D.
- The Sensors along with the Transmitter shall be certified suitable for the specified Electrical Area Classification, and EPC Contractor shall furnish the certificate from body like FM/ UL / BASEEFA / PTB / DGMS.
- The Sensors shall be Weatherproof to IP 65 and Explosion Proof to NEMA 7 certified for the specified area classification.
- Cable entry for the Sensor shall be as per Manufacturer's Standard. However, flying leads are not acceptable. Cable glands (explosion proof certified to NEMA 7) shall be in EPC Contractor's scope of Supply.

b) Selection of Instrumentation & Control System with the following concepts:

- Monitoring and process control of the installations on the concept of unmanned operation of production facilities. FF (Foundation Fieldbus) based DCS system should be provided.
- Safety Instrumentation System (SIS) for automatic operation and control as per IEC61508 & IEC61511 standards.
- Tank Farm Management System as well as other systems/equipment's as OISD189.
- Coriolis Mass Flow Metering System for mass material balance.
- Motorized Valve for unit level and plant level isolation and ESD system.
- Control & Instrumentation system for all the production equipment's.
- Instrumentation and Control system for plant Utilities.
- Fire & gas detection system
- CCTV surveillance system
- Ambient air quality continuous monitoring including data display in the entrance.
- ROSOV for tank first body valve suitable for crude oil application with PTR. Data sheets to be approved by OIL.
- MOV for outside dyke valves suitable for crude oil application with PTR. Data sheets to be approved by OIL.
- Control valve must be with SMART positioners – DATA sheets to be approved by OIL.
- All manual/isolation valves/ESD/shutdown valves datasheets to be provided by EPCM after selecting the right type suitable for OIL's process requirements and isolation criteria.

c) Preparation of interlocks and protection specs.
d) Preparation of control system scheme and concept note.
e) Preparation of Instrumentation and control design basis document.
f) Preparation of measurement loop diagrams.

g) Preparation of cause and effect diagram.

h) Preparation of instruments index and specifications for field instruments and accessories, DCS System, PLC system, ROSOV, MOV, Control valves, CCTV & F&G system etc. EPCM will have to prepare the detail specifications for the entire instrumentation and control system including all field instruments, systems, equipment's etc.

i) Preparation of control room layout and control panel GA drawings etc.

j) Designing of electronic mimic panel, surveillance camera and monitoring system.

k) Calculation of total electrical load for Instrumentation systems and design of suitable UPS

l) Preparation of technical specifications/data sheets for all equipment and review/approval of vendor's Contractor's design documents, if any.

m) Preparation of instrument layout drawings, cable schedule, and inter-connection diagrams.

n) Preparation of instrument installation standards and erection specifications with instrument hook up drawings.

o) Technical appraisal of all instrument items supplied as part of turnkey bids in consultation with OIL.

p) Provide final agreed specifications/standards for all instrument supplies and installation /erection under turnkey concept as part of Contract document.

q) Review/approval of drawings/documents of turnkey supplier during execution as necessary with respect to engineering performed by the Contractor.

K. **ELECTRICAL**: It will include

(a) Preparation of design basis as per requirements of the system and statutory requirements e.g. OMR, CMRI, DGMS, Indian Electricity rules and OISD.

(b) Preparation of single line diagrams and typical control schematic drives.

(c) Preparation of area classifications drawings as per latest DGMS guidelines.

(d) Preparation of illumination layout drawings.

(e) Preparation of typical installation drawings for installation, earthing and lighting fixtures.

(f) Review of vendor's/Contractor's generated drawings.

(g) Equipment layout drawings and equipment, mounting and erection details.

(h) Special alarm for substation equipment, drive motors, lighting fittings, motor control centres, security alarm at gate office etc.

(i) Specify applicable codes / standards for electrical supplies and erection.

(j) Technical appraisal of bids for all electrical items and concepts in turnkey bids in consultation with OIL.

(k) Selection of electrical and instrument items along with requisite specifications as per OMR, Indian Electricity Rules, OISD and DGMS guidelines.

(l) Installation of lightning arrester.

L. **CIVIL & STRUCTURAL**:

(a) Compilation of load data as required for civil design based on the data received from vendors

(b) Soil Collection & test, investigation and report generation of soil data and specified further investigation, if required, by Contractor. To carry out the topographical survey, contour survey. Finalization of earthwork and finished ground level.

(c) Development of design criteria for civil, structural and architectural Work and finalization of the same.

(d) Design of foundations and preparation of drawings of all equipment. Necessary soil data to be generated by the consultant for civil engineering design. Note: Detailed design drawing for Architectural works would be in EPCM scope.

(e) Preparation of preliminary systems for structural and reinforcement steel in advanced procurement action.

(f) Design of foundations and preparation of drawings of various equipment, office and control room, necessary static and dynamic loading shall be obtained from different vendors and generated wherever required as a basic data for civil design engineering, bar bending schedule for foundation etc.

(g) Development of design criteria for civil, structural and architectural Work

(h) Design and engineering of pavements, equipment or service drains up to the sensed drainage point.

(i) Technical appraisal of bids received for the civil/structural specifications/ standard followed.

(j) Provide final agreed specifications for civil / structural Work for the turnkey plant supplier for final Contract.

(k) Office room, godown, security barrack, toilet block etc. to be made of PRE FABRICATED structure, control room as per OISD standard.

(l) Review/approval of drawings/documents of turnkey supplier during execution as necessary with respect to engineering performed by the Contractor.

M. **INSULATION AND PAINTING**: It will include

(a) Provide specifications/standards/applicable codes for turnkey bid packages.

(b) Selection of type of insulation and painting materials based on crude quality.

(c) Anti corrosive painting and consideration for SRB (Sulphate Reducing Bacteria) in the supplied crude should be taken into account while designing/ selecting the paint for inside area of all tank, pipes & vessels.

N. **FIRE PROTECTION & SAFETY:**

**FIRE PROTECTION**:

(a) The fire protection and firefighting facilities shall conform to OISD 189, OMR, NFPA, BIS norms to meet requirements of ISRS protocol etc.

(b) Design of Fire water storage, pump, distribution network and preparation of fire water network diagram.

(c) Design of Foam flooding system for Crude Oil/Condensate storage tanks as per statutory guidelines. Foam Pumps should be electric motor driven along with one diesel engine driven set for disaster conditions.

(d) Fire detection facility shall be addressable at control room with manual call point & fire alarm system. Fire water drenching pumps shall be diesel engine driven. Jockey pumps shall be electric motor driven. Fire water main shall be ring main type.

(e) The system for above ground portion shall be analyzed for flexibility against thermal expansion and necessary expansion loops where called for shall be provided. The underground crossings should be provided with suitable casing pipes and should be provided with anticorrosive lining up to 30 cm above the ground level.

(f) Preparation of Fire Emergency Manual with scenario based contingency plan.

O. **SAFETY**:

(a) EPCM will appoint a HSE coordinator for the project.

(b) All necessary statutory approvals to be taken for the installation.

(c) All appliances, equipment and machinery that may be used in hazardous area in Zone-1 & Zone-2 will be of such type, standard and make as approved by DGMS.

(d) All Contractor personnel will have to undergo Mines

Vocational Training prior to deployment in the mine.

(e) Contractor to adhere to OIL's HSE Management System.

(f) Digitization of drawings, (P&I) diagrams to be done.

(g) Appropriate flaring system in line with MOEF (Ministry of Environment &Forest) stipulations and OISD STD-106 are to be done.

(h) All piping including Fire water lines should be above ground and should have single point support/better concept approved by OISD.

(i) Disaster Management Plan is to be made based on Risk Analysis.

(j) Spill Prevention Control & Counter Measure (SPCC) plan is to be made.

(k) Standards for emissions from storage of volatile liquids, natural gas may be considered.

**NOTE**:

The above lists are indicative only and not exhaustive. The EPCM shall suggest any other necessary design to make the system foolproof. The drawing & design which will be prepared by package vendors and construction contractors shall be approved by EPCM.

**5.0 FOR SELECTION OF PACKAGE VENDORS AND CONSTRUCTION CONTRCATORS FOR IMPLEMENTATION OF THE PLANT AS PER TIME SCHEDULE,**

**Note: Since the entire project for construction of the two plants will be executed in EPCM mode, it is the responsibility of the selected EPCM to suggest OIL as to how many MR (Package tenders) and how many Site construction tenders to be floated for commissioning both the plants with the planned schedule of 26 Months. EPCM must come prepared with the same at the time of Kick off meeting after placement of LOA and get the MR plan approved by OIL. EPCM must also decide which MR's will be floated with basic engineering data and which MR's will be floated after detail engineering by EPCM.**

(a) Preparation of various/multiple tender documents (Material Requisitions with all process data sheets, drawings etc.)Including technical and commercial parts for inviting bids for packages and site construction based on Basic/Detail Engineering & FEED in consultation with OIL.

The tenders shall ask the bidders to submit Detailed Engineering (if the same is not done by EPCM at their own risk and to expedite project progress) for the various aspects viz. equipment, construction, structural, piping, mechanical, electrical, instrumentation etc. i.e. to be prepared on the basis of Basic Engineering & FEED.

(b) Submission of the tender documents (MR) to OIL for checking/approval; fulfilling all aspects of jobs required for construction of the PLANTS at two locations in both hard (5 copies duly printed in color and hard binder) and soft copies; publication of NIT in press through OIL's advertising agent (selection of Newspaper and expenses of publications will be to OIL's account) and uploading of the tender documents in the e-portal of OIL along with OIL's engineers for e tendering.

(c) Intimation to prospective bidders drawing their attention to the tender; organizing pre-bid conference and clarifying to prospective bidders. Necessary clarification to prospective bidders shall be provided by the EPCM Contractor with intimation to OIL.

(d) Bids (techno-commercial & priced) from vendors and contractors shall be received at OIL's office and will be opened as per above clause. Initially only techno-commercial bids shall be opened which shall be evaluated and tabulated by EPCM on quotations comparison sheet for technical compliance. EPCM shall organize requisite pre-bid, post-bid meetings in consultation with OIL and in presence of OIL's representative for expeditious replies from Contractors to the techno-commercial queries. The EPCM shall prepare TQ's, obtain the replies and forward the recommendations based on this and together with copies of all related correspondences forward to OIL with recommendations on the technically and acceptable offer.

(e) On receipt of EPCM's recommendations on technical evaluation of the bids received against the tender, OIL shall arrange for obtaining necessary approval from OIL's competent authority for opening the priced bids of the technically qualified bidders.

(f) After receipt of approval for opening of priced bids of technically qualified bidders, OIL shall intimate the technically qualified bidders for attending the priced bid opening. Priced bids shall be opened at OIL's office at Duliajan in presence of representatives from EPCM and technically qualified bidders within one week of intimating the bidders. Bids of the technically disqualified bidders shall not be opened.

(g) On receipt of EPCM's recommendations on final commercial

evaluation of the bids received against the tenders, OIL shall arrange for obtaining necessary approval from OIL's competent authority for awarding the Contract/Order to vendors and contractors. On receipt of necessary approval, OIL shall issue the Letter of Award (LOA) to the Contractor/Vendor awarding the Contract/Order to selected vendors and contractors and enter into an agreement with them. EPCM will formulate the Contract agreement for all these orders and contracts.

(i) EPCM shall also ensure that equipment suppliers provide maintenance spares for at least first 2 (two) years of operation and supply a list of such spares for 10 (ten) years to OIL with classified prices and necessary specifications with details enabling OIL to procure directly in future.

(j) EPCM shall assist OIL in issuing Recommendatory Letter to Directorate General of Hydrocarbon (DGH), New Delhi for Essentiality Certificate for imported items. Although customs clearance shall be the responsibility of the Contractors/Suppliers, if necessary, EPCM shall assist them in clearing the goods through customs authority. EPCM shall also assist in obtaining other required documents /certificates/licenses from Govt. authorities for availing the benefit available to OIL towards supply of goods including Nil Customs duty, Excise duty exemption.

(k) The EPCM Contractor will make necessary documentation in prescribed formats for statutory approvals like DGMS approval, Permission/approval from other statutory bodies. The EPCM shall have to ensure that all the statutory approval/certificates are obtained before commissioning of the Plant is deemed to be completed.

(l) The EPCM will prepare 3D Computer modelling with simulation as per inputs received from various package vendors and contractors for the entire plant till it is put into operation. EPCM will also update the construction sequences in the said model during construction phase. EPCM needs to provide necessary software with assurance for maintenance support from the OEM/authorized dealer for minimum 5 years from the date of commissioning of the plant.

## 6.0 SUPERVISION OF SITE/PACKAGE CONTRACTOR'S WORK FOR CONSTRUCTION /INTEGRATION /INSTALLATION AND COMMISSIONING OF THE PLANTS:

EPCM's personnel shall supervise the execution of construction, erection and installation of the complete system as detailed above, to ensure soundness of erection and installation by providing adequate qualified experienced engineers. At least one responsible engineer shall be present in the site category wise depending of the nature of Work in progress. EPCM's engineer/supervisor must be present at site on round the clock basis wherever job continues during 2nd and 3rd shifts.

## 7.0 EXPERIENCE & QUALIFICATION OF THE PROJECT MANAGER/ TEAM MEMBERS

i) **PROJECT MANAGER & Resident Construction Manager**:

There shall be a professionally qualified Project Manager & RCM with Engineering Degree qualification background to lead the Project team. The Project Manager must have experience of at least 10 years in the field of oil & gas processing facility planning, design (FEED), Project execution and overall Project Management. He must have worked as a Team Leader in at least 2 (two) successfully completed surface facility projects. He must be well versed with all aspects of study as described in TOR, including but not limited to data acquisitions, installation in Oil & Gas industry and system designing, knowledge of different field proven technologies, comparison and evaluation thereof to identify appropriate and latest proven technology, FEED, detailed design, preparation of tender document specific to the job requirement, material selection, operations, result analysis and trouble shooting, co-ordination and supervision of all kind of activities related to the construction of complete system and commissioning. He shall have the ability and authority required for performance of the consultant's job. He shall liaise with OIL's representative for the proper co-ordination and timely completion of the job on any matters pertaining to the job.

ii) **TEAM MEMBERS**: The Project Team must comprise of professionally qualified members each having 5 (five) years' experience in the respective domain/professional field like Project Management, Process Engineering, Mechanical Engineering, Piping Engineering, Construction/Civil Engineering, Electrical Engineering, instrumentation Engineering, Petroleum Engineering, IT, Corrosion Engineering, Chemical Engineering, Safety etc. Moreover, each of them must have Work experience as a team member at least in one successfully completed surface facility project in Oil & Gas industry. One or more members of the team must have experience of carrying out FEED for any Crude oil/gas processing plant/ Crude oil handling Tank farm/ETP in Oil & Gas

sector.

The services shall be rendered by EPCM in the following manner:

(a) Ensure safe operation and execution of the Work at site.

(b) Carry out all basic/detail/residual engineering as per inputs from package vendors and site contractors with prior intimation to OIL.

(c) Planning of Work at site in consultation with OIL and site Contractors.

(d) Coordination, liaison and overall quality supervision Work at site.

(e) Preparation of daily, weekly, monthly & quarterly progress report of site Work

(f) Identifying technical deviations from specification requirements, in the Work being executed by site contractors. The same should be immediately reported to OIL and submit the Engineering Deviation Report (EDR).

(g) Check and verify for payment of package vendors and site Contractor's bill relating to site Work and package supply and integration. Maintaining necessary measurement books/records of the site Contractor's Work.

(h) EPCM shall scrutinize the invoices received from Contractors, get clarifications, if any, and forward to OIL with their recommendation to affect payment as per contractual provisions.

(i) Follow-up and liaison with Contractors for all clarifications of technical details and approval of drawing, where required and also certify after scrutiny.

(j) EPCM shall be expediting orders placed for all items. This will ensure that the delivery dates for all orders are realistic and materials are delivered as per programme.

(k) EPCM will carry out the inspection activities in for all the items including raw material certification to ensure that all the items supplied are strictly in accordance with the requirement of the relevant standard and specification. EPCM shall inform OIL about the progress of procurement action for different equipment on forthrightly basis. EPCM may hire OIL approved TPI agencies for carrying out all type of inspections for supply of packages and construction work at site. Inspection plan should be as per OIL approved ITP (inspection and test plan), ITP, QAP should be prepared by EPCM along with various type of test reports, ,IMIR, IRN & IMRN report formats. Job Procedures for site works should be prepared by EPCM as per relevant standards as applicable.

(l) Strictly ensure for compliance of proper safety measures by

EPC Contractor's personnel.

A) **CONSTRUCTION SUPERVISION**: The construction supervision services would include the following:-

(a) Appointment of safety officer having professional qualification related in the related field and must be conversant of all safety and statutory regulation during the period of construction
(b) Provide necessary supervisory staff at the construction site to review / supervise construction, erection of plant and equipment, civil and structural engineering works and others.
(c) Review planning and monitoring of construction and erection works.
(d) Supervise site development works like site grading, construction of roads, culverts, storm water drains, site investigation studies etc.
(e) Technical audit review of supervision of civil / structural mechanical erection of equipment and machinery and piping.
(f) Technical audit review of supervision of erection and installation of all electrical and instruments as necessary.
(g) Supervision and verification of the final tests carried out after erection of equipment and machinery, electrical, instruments and piping for turnkey package plants.
(h) Organize site management meeting to ensure that Work is carried out in safe and workman like manner in accordance with the specifications and to the programme.
(i) Consultant will assist OIL for maintaining record and enforcement of labor laws and other statutory requirements applicable in the state including insurance of workmen.
(j) Consultant will be responsible for holding weekly field meeting, monthly project review meeting, scheduled safety meeting, daily construction related meeting.

B) **COMMISSIONING of The PLANTS**:

EPCM should ensure testing and mechanical completion of the plants. Commissioning of the PLANTS to the satisfaction of OIL and training of personnel from OIL during the period of trial run for day to day running and trouble shooting of the PLANTS is also the responsibility of EPCM. Minimum activities shall include:

(a) Review of vendor's P & IDs as necessary.
(b) Preparation of Safe Operating Procedure (SOP). The SOPs will be printed as bound book after OIL's approval. Prepare guidelines of operating manuals outlining process sequence, instrument control, start up and shutdown procedures, etc. Review of operating manual prepared by contractors. 20

copies of the above documents shall be submitted to OIL.

(c) Prepare plot plan, unit layouts, control room and panel layouts, instrument logics etc. as necessary.

(d) Prepare start up, shutdown and emergency provisions and procedures.

(e) Prepare planning and scheduling of plant startup activities, wherever necessary.

(f) Prepare the pre-commissioning programme and to assign priorities during final stages of construction Work.

(g) Check plant units for mechanical completion and pre-commissioning at site.

(h) EPCM shall ensure that all statutory approval for the Plant and the installed instrument/facility has been obtained prior to commissioning of the Plant and submit all the documents and certificates to OIL.

(i) Start up would be undertaken by EPCM under guidance of Consultant / OIL.

**7.1 <u>PROJECT MANAGEMENT</u>**: The EPCM will engage one competent Project Manager for the project. Also they will set up an office in Duliajan at its own cost for day-to-day co-ordination. Any infrastructural facility like office furniture, PC, Printer, Scanner, vehicles for movement from Duliajan to site etc. as required for the same will have to be arranged by EPCM at their own cost.

A) **<u>PROJECT MANAGEMENT</u>**: Assigned Project Manager shall be qualified and competent and having sufficient experience to manage the project implementation. The Project Manager shall be prime contact between the OIL and EPCM Contractor. He shall be assisted by appropriate staff to control and coordinate all aspects of engineering, supply of equipment, material, and construction activities and do the related activities. In order to control the project, the Project Manager shall develop an overall project schedule (Bar Chart and PERT chart) and S curves for physical progress and financial budgeting to ensure that the project is completed within the stipulated time frame and cost. The project schedule shall be used as a basis of reporting the progress of the Work on a monthly basis.

The major responsibilities of the Project Manager and his team shall be:

(a) Project Manager shall be appointed to once LOA is issued to EPCM.

(b) Project Manager will convene the Kick-off meeting.

(c) Liaison with OIL.

(d) Carryout overall project management and administration of the project works covering planning, review, co-ordination and

reporting.

(e) Project management and technical inputs to OIL in deciding methodology of project execution, framing of NIT, item rate tenders and bid package documents , finalizing procedures for evaluation of bids, contracts and assist OIL in obtaining government clearances.

(f) Responsible for all acts and omissions of the project Contractors in regard to successful execution and commissioning of the project.

(g) Certification of Contractor's bills limited to quality, quantity and percentage progress including the arithmetic check. However, before making payment, OIL will ensure payment in terms of conditions of the Contract.

(h) Assist OIL in settlement of final bills with respect to extra claims and delivery extension for various contracts, up to a period of 3 (three) months from Mechanical completion / Commissioning of respective contracts / works. Carry out detail delay analysis for all the contracts and orders of the project and submit project closure report to OIL.

(i) Adoption of Project management Concept (PMC) for expediting works. This includes placement / deployment of personnel at Contract / sub vendor works.

(j) Overall management of the project including assisting OIL in cost control reporting in mutually agreed format using modern management tools.

(k) Co-ordination of activities relating to the project of various departments within EPCM's office. The PM (Project Manager) will not use the project data for any purpose other than this project and will ensure complete secrecy of the data.

(l) Overall planning, scheduling, monitoring and controlling of overall project progress. Assist OIL in cost planning and control.

(m) Hold periodical review meetings with Contractors and Vendors to monitor the progress identify constraints, slippages and suggest remedial measures.

(n) Preparation of reports.

(o) Project cost estimation shall be prepared with requisite back-ups and also shall assist OIL for review of project cost estimate before and after placement of major orders/contracts.

(p) Prepare monthly cost statements and cash flow statements if required.

(q) Necessary technical write-up and drawings shall also be submitted to OIL to enable them to prepare detailed Project Report.

(r) Prepare Procurement Status Report on monthly basis.

(s) Check all the equipment and material including debris, scrapes etc. being taken out from the site by Contractors and prepare gate passes on OIL's specified forms with proper counter signature and get the same authorized by OIL's Project Manager.

(t) Carry out process co-ordination.

(u) Management of Procurement Services.

B) **PURCHASE**:

(a) Provide all technical specifications and technical BID EVALUATION CRITERIA/ BID REJECTION CRITERIA for various Contractors for the purchase supply, installation, construction and commissioning of project and prepare bid packages / tender documents.

(b) Providing inputs to get secrecy Agreement executed by the Contractors with process licensor, wherever necessary.

(c) Evaluate bids received to obtain technical clarifications from bidders, arrange meetings and discussions with bidders.

(d) Conduct technical discussions with bidders and assist OIL to conduct in commercial negotiations with bidders.

(e) Provide recommendations of the most suitable bidders on the basis of TECHNICAL BEC., technical acceptability, requisite experience etc.

(f) Assist OIL in obtaining clearance from Empowered Committee.

(g) Preparation of draft and final contracts/purchase orders incorporating all changes as agreed upon with the bidder.

(h) EPCM would assist OIL in replying all audit queries raised within one year of commissioning.

(I) Prepare, Place PO and Contracts to package vendors and construction contractors.

C) **INSPECTION / EXPEDITING**:

(a) Inspection shall be audit type such as reviewing essential documents and overall checks on quality for supplies through various package vendors and contractors.

(b) Inspection of critical equipment at identified stages for supplies through various package vendors and contractors.

(c) Review of QA/QC programme of various package vendors and contractors.

(d) Witnessing performance test of all critical equipment.

(e) Expediting vendor's work on case to case basis, required from time to time to meet the project planned progress during the

entire project lifecycle.

(f) EPMC shall inspect or depute OIL approved TPI (cost of same has to be borne by EPMC) the various equipment and machinery during the various stages of construction and tests at the manufacturer's works within the country.

(f) OIL may at its discretion inspect the various equipment and machinery during the various stages of construction and tests at the manufacturer's works within the country. EPCM will intimate OIL tentative locations/dates of such inspection before fifteen (15) days. Cost of such inspection by OIL personnel will be borne by OIL. EPCM shall accompany OIL for such inspection. EPCM's personnel expenses for such visit shall be borne by EPCM.

The EPCM shall collect any additional data required for soil/ climatic conditions, HFL (Highest Flood Level), average rain fall, ground water level, seismic data etc. over and above the data provided along with the tender document. EPCM shall include site visits in his scope of Work for data collection and report generation.

(D) **DOCUMENTATION & SUBMISSION OF REPORTS**:

EPCM shall prepare and submit reports as follows and as mentioned in various clauses and annexure. The format of the report shall be discussed and mutually agreed between OIL &EPCM. Reports should include the followings:

D1) Project Progress Reports shall include -

i. Daily Progress Report: Daily report should include day to day progress report of site Work.

ii. Weekly Progress report: Weekly reports will include the works completed at the end of the week and also the target jobs of the next week. It should also include engineering progress, material or equipment procurement status report, if any.

iii. Monthly Progress Report: Monthly progress reports shall include the historical background of the Project; a brief description of actual versus planned progress; problems encountered and resolutions; and comments on the quality of Work and Contractor's performance. The reports shall include graphs or charts showing physical progress of works. The reports shall also include colour photographs showing completed Work and construction activities undertaken during the relevant reporting period. Monthly report should also indicate item wise detail status of various procurement and status of statutory approvals. Monthly report will contain a

section devoted entirely to an assessment of the impact of accumulated delays, if any, in the execution of works and a projected date for completing the delayed jobs without affecting the Project schedule. The progress report shall highlight the specific delays, impact of accumulated delays, reason for such delays, action plans proposed to bring back to original schedule, major bottlenecks and holdups. The format of the progress report shall be discussed and mutually agreed between OIL and EPCM. Each report shall contain a section devoted to reporting the status of Emergency Works and Work Orders issued to the EPC Contractor, detailing the dates of notification and subsequent actions and the time and cost effects as assessed, where appropriate.

iv. QUARTERLY REPORT: The Consultant shall prepare quarterly reports that summarize the content of the monthly reports, giving an overview of progress on the Contract and the main issues that have arisen during the period. Each quarterly report shall contain an introduction presenting historical project background to set the current report in context. The report should contain an analysis of the EPC Contractor's performance. Ten copies of these reports shall be submitted to OIL within fourteen days after the end of each reporting period.

D2) Accident Reports- A report of the circumstances of any significant accidents occurring during execution of the project shall be forwarded to OIL.

D3) Claim Reports- A report detailing the Project Manager's assessment of each claim notified by the EPC Contractor shall be prepared and submitted to OIL.

E) **OTHER DOCUMENTATION**: EPCM shall keep record as mentioned below, but not limited to the followings:

(i) Maintain a set of drawings ("as-built" drawings) recording all details of the Work as actually executed.

(ii) Maintain at the project site orderly files for correspondence, reports of site meetings, product and material submissions, site instructions, information and drawings issued subsequent to the start of works Contract, as well as Consultant's clarifications and interpretations of the Contract documents, progress reports and other related documents.

(iii) Keep a diary or log book, recording daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures.

(iv) Records of the Meetings.

**Note: Please note that EPCM will have to use Project management software**

**of M/s OIL named as TIEMCHART for creating, updating and storing all project related data, reports and MoPNG reports, etc. Project schedule, resource planning, billing schedules and other details will have to be updated in the software by EPCM. The license for the same has to be procured by EPCM from M/s TIEMCHART by paying a license fee of about Rs. 50,000 only.**

## 8.0 PROJECT SCHEDULE:

The EPCM shall Work within the indicated time Schedule as given under:

The time period for the total work (Project completion including PGTR) shall be 26 months (Twenty Nine Months only) from the date of issue of LOA to EPCM: The contract duration of EPCM will be 28 months from the date of issue of LOA to EPCM (2 months extra from 26 months project duration has been kept for project closure activities)

The brief break up (tentative is as below), but the actual schedule has to be submitted by EPCM as per project scope after award of LOA:

- Basic/Detail Engineering Package (BEP) – 2 months
- Award of orders to Package Vendors – 3 months
- Delivery by Package Vendors – 10 months
- Award to Construction contractor – 3 months
  (Before 3 months of EPC completion)
- Civil, construction, installation, hook-up by Construction Contactor – 9 months ( EDC is before delivery of first package is made to site)
- Mechanical Completion, Commissioning and pre-commissioning – 1 months
- PGTR by EPMC – 1 months

**Tentative project schedule is as below covering various phases of the project: (This is just for indication and exact breakup has to be planned by EPCM keeping the total project duration as 26 Months only from the date of issue of LOA to EPMC)**

| | | |
|---|---|---|
| **Total Project Duration (From date of LOA to EPCM) – 26M = 26 x 30 Days = 780 Days** | | **26M** |
| **Basic &Detail Engineering and tender preparation by EPCM - Project Phase I** | | **227** |
| **Soil Investigation, Topographical Survey and Reports Submission** | | **120** |
| **Detail Engineering** | | **162** |

| | | |
|---|---|---|
| | Preparation of detail Engineering | 138 |
| | Process Engineering | 112 |
| | Mechanical, Piping & Fire Protection Engineering | 132 |
| | Electrical Engineering | 90 |
| | Instrumentation Engineering | 90 |
| | Civil & Structural Engineering | 120 |
| | **submission of detail engineering & approval by OIL** | 130 |
| | **Review/approval of detail engineering by OIL** | 135 |
| | **Preparation and presentation of computer animated 3D walkthrough model** | 117 |
| | **QRA Study EERA Study, ERA study, HAZOP Study and SIL Study** | 87 |
| | **formulation of health safety and environment policy** | 80 |
| **Package/Construction/Fabrication Tenders** | | **207** |
| | Preparation and submission of BOM and cost estimates for the whole project | 60 |
| | Finalization of project Procurement, Construction & Commissioning schedule | 15 |
| | Preparation of Multiple Tender documents (for all packages and site construction/fabrication/integration activities) and submission to OIL's approval | 75 |
| | Submission of draft tender/MR's document to OIL | 45 |
| | Receipt of approval of draft tender/MR's document by OIL | 80 |
| | Submission of final tender/MR's document to OIL for publication | 7 |
| **IFB, Evaluation and award of Package orders and Site Construction/Fabrication Contracts** | **Project Phase II** | **173** |
| **Invitation and bid submission** | | 57 |
| | publication of invitation of bid (IFB) in press through OIL | 1 |
| | Pre bid conference and clarifying to Bidders | 1 |
| | Receipt of final clarifications request from bidders based on PBC | 7 |
| | Pre-bid queries clarifications by EPCM/OIL & final | 21 |

| | | |
|---|---|---|
| | addendum release | |
| | Techno Commercial Bid submission by EPC Bidders | 21 |
| **Bid Evaluation** | | 36 |
| | Opening of Technical Bids at OIL`s office | 1 |
| | Evaluation of bids for technical and commercial compliance | 28 |
| | Submission of the scrutinized bids for OIL's comments/approval | 7 |
| **Award of package vendor orders, Site construction/fabrication contracts** | | 80 |
| | OIL's approval for the scrutiny report | 7 |
| | Approval for Priced Bid opening | 21 |
| | Price bids evaluation by EPCM/OIL | 14 |
| | Local management Approval for Award of Contract | 10 |
| | Board Approval for Award of Contract | 21 |
| | Awarding of contract/orders (LOA)to vendors and contractor | 7 |
| **Package vendors for both sites (Procurement, Installation, Testing, Commissioning, PGTR)** | **Project Phase III** | 380 |
| **Kick off meeting** | | 1 |
| **Procurement of Materials** | | 270 |
| | **Ordering** | 170 |
| | Process Engineering | 100 |
| | Electrical Engineering | 90 |
| | Instrumentation Engineering | 90 |
| | Civil & Structural Engineering | 90 |
| | Mechanical, Piping & Fire Protection Engineering | 150 |
| | **Manufacturing & Delivery** | 240 |
| | Vendor drawings reviewing & approvals | 150 |
| | Inspection of equipment's | 130 |
| | Delivery of equipment's | 180 |
| **Installation** | | **195** |
| | Mechanical & Piping | 170 |
| | Electrical | 150 |

| | | |
|---|---|---|
| | Instrumentation | 150 |
| | | |
| **Commissioning** | | 60 |
| **PGTR** | | 30 |
| | | |

| | | |
|---|---|---|
| **Site construction/fabrication/integrator at both sites ( Construction Activities)** | | 244 |
| **Kick off meeting** | | 1 |
| **Site survey** | | 3 |
| **Civil/Mechanical Construction activities** | | 240 |

| | | |
|---|---|---|
| **EPCM-Post Award of LOA to Package vendors and construction contractor** | | 376 |
| **Inspection and expediting services** | | 270 |
| **Construction and Project management** | | 286 |
| **Monitor and control of project progress** | | 286 |
| **QHSE monitoring and certification of the jobs executed by contractor** | | 286 |
| **updating of construction sequences in the 3D computer animated model with simulation** | | 286 |
| **Getting statutory approval from respective authority for the entire plant facilities** | | 67 |
| **Conducting training to OIL personnel for operation & maintenance of the plant** | | 67 |
| **Receipt of as built from contractor, approval and submission to OIL** | | 70 |
| **Commissioning and submission of commissioning** | | 60 |

| | | |
|---|---|---|
| **report to OIL** | | |
| **PGTR** | | 30 |

## 9.0 VARIOUS MILESTONES FOR EXECUTION:

The time schedule for various activities to be completed by the EPCM during execution of this contract would be tentatively as indicated in the above schedule:

(i) Detail Soil Investigation, Soil Liquefaction Effect and topographical survey, Detail Contour Map, Collection of Metrological data will have to be carried out by EPCM.

(ii) Basic& Detail Engineering with Front End Engineering Design for Installations. The EPCM will have to submit reports in triplicate on Basic Engineering & FEED (hard and soft copy), computer animated AEC walkthrough in suitable software for design visualization of the entire plant & operation etc. of the installation and HAZOP/HAZIP/SIL and Environmental Risk Assessment Study to OIL for clearance/approval.

(iii) Preparation of tender documents based on Engineered Bid Package, Preparation of Cost Estimates. The EPCM will have to prepare all tender documents to invite bids for Package vendors and Construction Contractor to be hired by the Company for successful execution of the project. The bid documents along with its cost estimates are to be submitted to OIL by the EPCM.

(iv) Invitation of Bids from Package vendors and Construction Contractor, Evaluation of bids and recommendation of successful bidders. On receipt of clearance from OIL, EPCM will invite bids as per guidance from OIL from the prospective bidders/ contractors. The EPCM will evaluate all technical as well as commercial offers received against these tenders and submit the evaluation reports to OIL with recommendation for finalization of contracts as per OIL's guidelines. Evaluation reports with recommendations against tenders shall be submitted by EPCM within shortest possible time from the date of tender opening so that the process of award of Contract could be finalized immediately.

(v) Project, Procurement& Site Construction Management and execution including Supervision of site Contractor's works on Residual Engineering, supply, Constructions and Erection of various equipment/ materials etc. and obtaining of all statutory approvals from the award of contracts to selected suppliers/contractors.

(vi) **TRIAL RUN & COMMISSIONING:** Commissioning of facilities after due testing. Handing over operation and maintenance manual for the

major equipment to OIL, and engaging OIL's personnel for O&M Contractor from commissioning period:.

**TOTAL PROJECT DURATIONIS 26 MONTHS FROM THE DATE OF LOA TO EPMC.**

## 10.0 SAFETY REGULATIONS & NORMS

10.1 The final plant layout & key-plan will have to be prepared in strict accordance of relevant stipulations of Oil Mines Regulations and other safety norms in force as well as Oil Industry Safety Directorate(OISD) standards in vogue. The most stringent of provisions stipulated in latest editions/ amendments of Oil Mines Regulations & OISD shall be followed.

10.2 Equipment and materials procured either directly or indirectly through a tie-up or otherwise shall have necessary certification of Govt. approved agencies (CIMFR etc.) and approval of such statutory bodies as stipulated vide provisions of Oil Mines Regulations, DGMS, Indian Explosives Act, Indian Electricity Rules, Petroleum Rules, Indian Boiler Regulations etc. in force or byelaws / directives promulgated by Govt. circulars.

10.3 EPCM must ensure that all electrical items (including, among others, those of Crude Dehydration Units & Instrumentation & Control System etc.) shall have CIMFR/DGMS approved test labs certification and DGMS approval obtained/ arranged by the successful bidder at their cost before commissioning of the Plant. Plant commissioning will not be considered without submission of above certificates/approval.

10.4 All site Work including of the plant shall be carried out strictly in accordance with provisions stipulated in Mines Act, Oil Mines Regulations, Indian Explosives Act and Indian Electricity Rules, Petroleum Rules, Indian Boiler Regulations etc in force and OISD norms in vogue.

10.5 In absence of a stipulated provision, sound industry practices shall guide the project execution Work and operation & maintenance thereafter.

## 11.0 TIME SCHEDULE:

The project shall be executed and completed in all respect within the quoted project completion period of 26 months from the date of issue of Letter of Award (L.O.A.) to the EPCM. The EPCM upon issue of L.O.A. shall submit to OIL an implementation Micro-schedule and be obliged for its strict adherence. Deviation from the quoted time schedule for successful completion of the project shall warrant levy of liquidated damage from OIL in accordance with the Liquidated Damage Clause of this Contract.

Any delay in execution of job as per approved mile-stones leading to delay in executing of the overall project will attract LD on total Contract value as

per relevant clause. Since Engineering, Procurement, Construction, Commissioning & PGTR and Project Management is under the total control of EPCM, so EPCM will be primarily responsible for any delay in overall project completion.

## 12.0 PLANT COMMISSIONING:

Commissioning of the plant will be deemed to be complete upon expiry of 1 (one) month of continuous trouble-free operation of the plant from the date of its being put into operation/date of completion of the project and all statutory approvals for the Plant and its equipment and facilities are obtained from Statutory Bodies. The trouble free operation will include operation of the plant, it's all equipment (including operation of the stand-by facilities), components, instrument, process and other by-pass systems in auto and / or manual mode (as per design) establishing all control/monitoring and shut-off systems. The above will be witnessed and recorded by OIL as well as the EPCM competent personnel.

## 13.0 ASSURANCE FROM EPCM:

### 13.1 ASSURANCE OF OUTPUT QUALITY OF CRUDE & CLARIFIED EFFLUENT WATER WITH DESIGNED HANDLING CAPACITY:

On completion of FEED and Basic & Detail Engineering for the Technology that will be implemented in the installation, EPCM shall provide OIL an assurance in writing of the desired performance level in respect of both quality and designed handling capacity. The BS&W of the output crude shall not exceed 0.2% and oil content in clarified formation water shall be less than 10 ppm and discharge of other effluents shall conform to State& Central Pollution Control Board norms and produced gas quality contains less than 10 micron impurities.

## 14.0 SPECIAL CLAUSES:

**14.1**

a) EPCM must assure/provide the following.

(i) Brief description of the projects and area in which the proven technology was applied.

(ii) Name of the Projects / fields where the technology was applied.

(iii) Name and address of the owner and operator of these assets.

(iv) Name and address of the EPC Contractor who carried out the turnkey implementation of the projects.

(v) Date of execution and schedule of the project jobs.

(vi) Certificate of owner that the technology was proven appropriate technology at the time of implementation.

b) EPCM Contractor to provide three organograms and three project

time schedules (one each for each phase of Work) showing the group leader and other key personnel in each discipline with relevant experience (To refer to "Experience and Qualifications of team members /EPCM).

c) The EPCM Contractor also must provide a guarantee that all systems provided will be adaptable, with minor modifications at the most if need be, to future technical developments in the next 10 (ten) years. Any such modifications that might be required must be commercially viable.

d) The EPCM contactor shall provide computer animated walkthrough 3D model displaying only process flow to OIL for design visualization of entire plant layout with focus on critical processes which they conceive from Basic Engineering & FEED and submit to OIL in 2 sets of R/W Compact Discs. This will be the basis for EPCMto finally prepare the 3D computer animated AEC (Architecture, Engineering and Construction) model for the entire plant.

e) The EPCM Contractor shall ensure in getting all statutory approvals for the Plant and its equipment and facilities are obtained from Statutory Bodies before the one month of trial run, without which the Plant will not be considered for trial run.

**14.2 EPCM must confirm categorically the following points:**

(a) The entire Project must be completed in 26 months from the date of LOA to EPCM, the EPCM must categorically confirm that any delay in initial phase will be made up in the subsequent phases of Work so that the total time span does not exceed the stipulated period. “PLANT” means all the facilities; infrastructure and works that are stipulated for creation/setting up/ construction/ laying/ completion/ integration vide TERMS OF REFERENCE & SCHEDULE OF WORKS (SECTION II)of this Contract. Also, “PROJECT” means all such activities that the “IMPLEMENTATION SCHEDULE” shall stipulate to execute & complete in all respects for creation of the “PLANT” and putting the same into operation.

(b) The EPCM must provide a guarantee for the Basic/Detail Engineering & FEED of PLANTS in respect of suitable, appropriate & fault-free design, and system adaptability, process philosophy, etc. without defects/faults that affect operation of the plant, for a minimum period of two years from the date of successful commissioning.

(c) The EPCM shall arrange field visits to similar type of technology implemented in PLANTS elsewhere, for OIL personnel so that OIL personnel can inspect and familiarize themselves with the

facilities and infrastructures required for such projects. Expenses towards all visits of OIL's personnel in connection with this Contract will be borne by OIL. However cost of such visits for EPCM personnel shall be borne by EPCM.

(d) OIL may deploy a team of Engineers to the extent necessary during any phase of EPCM's Work for association in design, review and approval at EPCM's head office. This shall, however, in no way relieve EPCM of its obligations. Cost of OIL's personnel's visits to EPCM office shall be to OIL's account.

(e) The EPCM Contractor will set up an Office-cum-base at Duliajan for day to day co-ordination during job execution under Phase I, Phase-II & Phase-III of the entire project. However, for Phase-I of the Contract, the EPCM Contractor shall commence their job with a kick-off meeting at OIL, Duliajan. During the meeting, the detail Work programme including Bar Chart & major milestones of Phase-I will be presented by EPCM and the same will be discussed & finalized. However, for undertaking the job under Phase-I, the EPCM Contractor shall have an option to undertake the same either at Duliajan office as well as at their own central base. For this, the EPCM Contractor's personnel along with the Project Manager (Team Coordinator) shall make a number of visits and stay at Duliajan at their cost as and when required during the Phase-I period. In such case, the minimum number of visits and the duration of the each stay of the EPCM Contractor's personnel shall be indicated. However, OIL reserves the right to direct the EPCM Contractor to make additional visits and extend the duration of the stay if felt necessary without incurring additional cost to OIL.

(f) The EPCM must categorically confirm that they would be solely responsible for completing the job as per requirement of the Contract even if some of the specialized jobs are done by hiring expertise. EPCM to categorically confirm that they are capable of completing all the jobs as specified. The action plan of the total Contract job should be clearly indicated.

(g) EPCM is required to strictly adhere to the time frame provided.

**14.3** OIL may request EPCM in writing for minor changes, modifications, deletions and/or additions to EPCM's Scope of Work and EPCM shall carry out such changes etc. after mutual agreement without any cost implications arising from such changes, if any.

**14.4 GUARANTEES**:

**14.4.1 GENERAL**: EPCM shall guarantee that the design and

engineering works and services shall be as specified and technical documentation to be developed shall be in accordance with sound and established engineering practices, using International Standards and Indian Codes and Regulations, wherever applicable, for the purpose specified, free from defects and suitable for respective uses intended.

**14.4.2** **ENGINEERING**: In the event of faulty engineering i.e. error or omission the technical studies, Work performed by EPCM; in respect of Work described herein, for which EPCM will be solely responsible, EPCM must agree to provide services to furnish corrective technical studies and engineering as may be required without any additional cost to OIL.

**14.4.3** **MECHANICAL**: For the benefit of OIL, EPCM shall include in all the tender documents the requirements of guarantees from EQUIPMENTand MATERIAL VENDORS and erection contractors against defects in materials and workmanship.

**14.5** **LIQUIDATED DAMAGES FOR DELAYS**: Refer elsewhere in the tender as mentioned.

**14.6** The EPCM shall provide latest, suitable, appropriate & proven technology covering the following areas, but not limited to:

- Optimum utilization of natural energy gas,
- User friendly facilities.
- Eco-friendly flare system, effluent and sludge treatment system.
- Foolproof safety of the plant and equipment
- Process control and automation.
- Modular plant design
- Containerized buildings

The EPCM may suggest other areas where the proven technology would add to better performance of the system.

**14.7** The EPCM shall be responsible for and shall provide all requirements of their personnel and their sub contractors, if any, including but not limited to their insurance, housing, security, medical services, messing, office accommodation, transportation (both air and land transportation), vacation, salaries and all amenities, termination payment and all immigration requirement and taxes, if any, payable in India or outside at no charge to OIL.

**14.8** **DRAWINGS / DOCUMENTS**:

I. The EPCM shall prepare all engineering documentation & drawings

and submit to OIL for scrutiny and review/approval (as applicable) before execution. The EPCM further shall submit to OIL Six (6) sets of finally approved documents and laminated drawings along with two (2) set of tracings and two (2) set of soft copies recorded in pen drives and DVDs.

II. In particular, but not limited to, EPCM will provide the documents & drawings which shall include (including those mentioned in the entire Contract) and not limited to –

□□Plant Layout

□□Drawing showing a bird's eye view of the plant layout and the surrounding features in a radius of 500 m around the plant boundary ( for this item only plant battery limit will not be applicable)

□□Process Flow Diagram(s)

□□Mechanical Flow sheet(s)

□□Piping & Instrumentation Diagram(s) (P&IDs)

□□□Detail Engg. Documentation including type & specifications of equipment & facilities

- Hazardous area classification drawings

□□G.A. Drawings

□□Structural & Fabrication Drawings

□□Construction & Working drawings

□□Electrical single-line Diagram

□□Plant Operating Manual

□□Safe operating procedure (SOP)

□□On-site Emergency Plan

□□Disaster Management Plan

□□Fire Contingency Plan

□□As-built Drawings

□□Project Dossier

Note: EPCM will prepare necessary drawings & documents as per their Basic Engineering & FEED. Other detailed engineering drawings viz. fabrication, foundation, construction drawings, etc. will also has to be prepared by them after award of jobs to various package vendors by EPCM.

**14.9 INTEGRATION & CO-ORDINATED EXECUTION**:

The scope of Work of EPCM includes coordinated execution of the entire project without any time overrun as per the time frame given above through integration of all facilities, components and equipment. The Scope of Work also covers, amongst others, close liaison with OIL and such aspects as may be necessary for maintaining technical and procedural

integrity for ensuring execution of the entire project in a time-framed, systematic, secure, safe and environment-friendly manner.

## 15.0 Project Scope and Definition for Oil Collecting Station (OCS) at Nadua:

A) **PROJECT DEFINITION**: DEVELOPMENT OF SURFACE FACILITIES FOR EVACUATION OF OIL AND GAS FROM LOC#CH/CW/CX/CU & FUTURE WELLS OF NADUA FIELDS. ALSO CRUDE HAS TO BE DEHYDRATED TO MEET 0.2% BSW REQUIREMENT AND FORMATION WATER AND OTHER EFFULENTS FROM THE PLANT MUST BE TREATED TO MEET PCB/CPCB/MOEF NORMS.

B) **Project scope:** Construction of an Oil Collection station to separate Oil, Gas & Water. To dehydrate crude to achieve 0.2 BSW and its storage and pumping facility for evacuation. Treatment of produced water to meet PCB/CPCB norms. Associated gas to be used as fuel and rest to be made ready for transportation through pipelines. **Pipelines from Oil & Gas wells to the proposed plant and crude &Gas Dispatch lines from the proposed plant are not in the Project Battery Limit**. **Procurement of LAND and construction of boundary wall in the land is not in the project scope and will be done/arranged by OIL separately.**

C) **Deliverables:** Complete OCS with five years O&M and all engineering documents, statutory clearances.

D) **Land:** Presently under procurement. Minimum 30 Bighas (33000m2) will be provided. Land map of the proposed site is enclosed. Land map is attached.

E) **Timeline:** Plant to be commissioned within 26 months from date of issue of LOA to EPMC.

F) **Type of construction**: Modular with minimum civil permanent buildings, containerised rooms are preferred.

G) **Summary:**

- Crude Storage with two tanks and One test tank of 160 KL, Bowser loading and pumping facility to be considered
- Modular design to be considered
- No permanent Civil building needs to be considered only the Containrised Office / PMC / Control Room will be considerded which will include; Operator Cabin, PMCC Container, Instrument / Control Cabin, Securiry barrack, Toilet Bunk etc.
- Dehydration facility and Modular ETP needs to be considered
- CPP will be required for power at site.

H) The Name plate capacity for the OCS:

**Oil (KLPD) – 1200 KLPD,**
**Water (KLPD) – 800 KLPD,**
**Total Liquid (KLPD) – 2000 KLPD,**

**Associated Gas (MMSCMD) – 0.3**

**HP Manifold: 15 for HP wells**
**LP manifold: 15 for LP wells**

I) OCS must have the following minimum process:

- Primary Seperation
- Well testing –Test Seperator with Test tank
- Crude oil treating and stabilization
- Dehydration facilities – EET – Heater treater/Dehydrator
- Crude oil storage ( two tanks )
- Crude oil metering and pumping
- Formation/produced water treatment for water injection/disposal with storage – Modular ETP with transfer pumps
- Flare system – enclosed ground non-luminious Flare system will be considered
- Associated gas to be used as fuel and rest to be made ready for transportaion.
- Facility for bowser loading is required
- CODP (crude oil despatch pump) Pumps to be considered

J) OCS will have the following minimum utilities:
- Fire Fighting System – Pumps & Tank
- Power Generation system – CPP (Gas driven gensets) with MCC
- Instrumentaion and Control – Medium/basic level of automation required to meet P&ID & OISD requirements will be cosniedred – Centralized control room will be considered.
- Instrument air compressor system
- Dosing System
- Fuel gas system
- Operator room & Admin building
- CCTV system for survellinace & F&G System
- Security barrack or facilities
- Potable water facility

K) **Plant Design data:** +/- 20% Design Margin to be followed, interms of % on flow if any.

L) Design Life of plant: 20 Yrs.

M) The associated gas shall be used for captive power, fuel for IWBH and Heater Treater

N) The produced water shall be collected into Storage tanks treated in a ETP for further treatment - To be treated in ETP for making the water suitable for water injection/disposal in wells. Water injection facility is not in the Project scope.

O) No. of Wells feeding the OCS: Presently 04 wells. In future provision to be kept for 15 HP & 15 LP wells.

P) Storage Capacity of Crude: 24 hours production capacity is recommended – Maximum TWO tanks OF SUITABLE CAPACITY TO BE considered.

Q) Five years O&M to be considerd for the plant.

## 16.0 Process Design Basis for Oil Collecting Station at Nadua:

**CODES AND STANDARDS TO BE FOLLOWED (MINIMUM AS APPICABLE):**

Table 3.0-1 Codes and Standards:

| STANDARDS | DESCRIPTION |
|---|---|
| API 12J | Specification for Oil and Gas Separators |
| API STD 520 Part 1 | Sizing, Selection and Installation of Pressure Relieving Devices in Refineries - Sizing and Selection |
| API STD 520 Part 2 | Sizing, Selection and Installation of Pressure Relieving Devices in Refineries – Installation |
| API STD 521 | Guide for Pressure Relieving and Depressurizing Systems |
| API STD 526 | Flanged steel Pressure Relief Valves |
| API RP 550 | Manual on Installation of Refinery Instruments and Control Systems (Instrumentation) |
| NFPA - 15 | Water Spray Fixed Systems for Fire Protection |
| NFPA - 16 | Installation of Deluge Foam-Water Sprinkler and Foam-Water Spray Systems |
| ASME – B31.1 | Power Piping (Pressure Piping code) |
| ASME – B31.3 | Process Piping |
| ASME SEC VIII | Boiler and Pressure Vessel Code – Rules for Construction of Pressure Vessels |
| API 650 | Welded Steel Tanks for Oil Storage |
| API 12K | Specification for Indirect Type Oil- Field Heaters |
| OISD-189 | Fire protection system for onshore drilling rigs, work over rigs and oil/gas production installations |
| OMR | Oil Mines Regulations 1984 |

## 17.0 RESERVOIR DATA FOR NADUA FIELD:

| Sl. No. | Well parameter | LOC:CH | LOC:CW | LOC:CU | LOC:CX |
|---|---|---|---|---|---|
| 1. | Reservoir conditions (Pressure & Temperature) | FBHP:290.5 ksc 108°C | FBHP:367 ksc 108°C | FBHP:355.9 ksc 89°C | FBHP:362.3 ksc 85.1 °C |

| | | | | | |
|---|---|---|---|---|---|
| 2. | Well head conditions FTHP as on 27.03.17 | 600 psi | 1200 psi | 900 psi | 1250 psi |
| 3. | Shut-in Tubing Head Pressure | 350 kg/CM2 | 350 kg/CM2 | 350 kg/CM2 | 350 kg/CM2 |
| 4. | Well Fluid Composition | Detailed in Table below | | | |
| 5. | Oil Flow Rate (KLPD) | 70 | 95 | 102 | 78 |
| 6. | Water Flow Rate (KLPD) | 0 | 0 | 0 | 12 |
| 7. | Gas Oil Ratio ( GOR ) or Gas Flow Rate SCM/KL | 29 | 26 | 19 | 27 |
| 8. | Production Profile of each well from day-one to end of field life (if available) | Not available | | | |
| 9. | PVT data / analysis | Not available | | | |

| LOC. / Well no. | LOC:CH | LOC:CU | LOC:CX | LOC:CW |
|---|---|---|---|---|
| Oil%(v/v) | 99.60 | 84.00 | 99.70 | 99.50 |
| Water %(v/v): | 0.4 | 16 | 0.3 | 0.5 |
| API Gravity: - | 30.1 | 30 | 30.3 | 30.1 |
| Pour Point,°C: | 27 | 27 | 27 | 27 |
| pH : | | | | |
| Salinity, ppm : | | | | |
| -$CO_3$2-, ppm : | | | | |
| -$HCO_3$-, ppm : | | | | |

## 18.0 GAS COMPOSITION :

Table 4.1-1 Gas Composition of Well Fluid

| **Component** | **Gas Composition by Volume** |
|---|---|
| Methane | 85-94 |
| Ethane | 3.94-4.36 |
| Propane | 2.21-2.44 |

| **Component** | **Gas Composition by Volume** |
|---|---|
| i-Butane | 0.46-0.52 |
| n-Butane | 0.69-0.77 |
| i-Pentane | 0.23-0.26 |
| n-Pentane | 0.16-0.18 |
| Hexane | 0.54-0.59 |
| Nitrogen | 1.08-1.19 |
| $CO_2$ | 0.46-0.51 |
| Gas gravity | 0.62-0.68 |
| Gross Calorific Value (KCAL/SCUM) | 9562-10569 |
| Net Calorific Value (KCAL/SCUM) | 8646-9556 |
| **Total** | **100** |

## 18.1 CRUDE OIL DATA :

Table 4.2-1 Wet Crude Quality

| **Properties** | **Minimum** | **Maximum** |
|---|---|---|
| Density at 15°C | 0.8547 | 0.9236 |
| API gravity | 26 (*) – Exact will be provided during engineering by EPCM | 34 |
| Pour point °C | 0 | 33 |
| Wax content % mass | 6.2 | 15.2 |
| Asphaltene content % mass | 0.2 | 1.4 |
| Resin content % mass | 2.8 | 6.33 |
| Plastic viscosity (cp)/YV (Dynes/sq.cm) at 24°C | 3/<2 | 75/285 |
| Average salinity (ppm) | 2000 | 3500 |

## 18.2 CRUDE OIL COMPOSITION :

Table 4.3-1 Crude Oil Composition of Well Fluid

| **Component** | **Crude oil Composition (Mole Fraction)** |
|---|---|

| **Component** | **Crude oil Composition (Mole Fraction)** |
|---|---|
| Methane | 0.114884 |
| Ethane | 0.005329 |
| Propane | 0.002982 |
| i-Butane | 0.000636 |
| n-Butane | 0.000941 |
| i-Pentane | 0.000318 |
| n-Pentane | 0.000220 |
| n-Hexane | 0.000721 |
| Nitrogen | 0.001454 |
| CO2 | 0.000623 |
| THEOL-55 | 0.000000 |
| H2O | 0.798141 |
| NBP[0]26* | 0.000580 |
| NBP[0]41* | 0.002043 |
| NBP[0]54* | 0.002810 |
| NBP[0]68* | 0.002652 |
| NBP[0]82* | 0.002623 |
| NBP[0]97* | 0.002804 |
| NBP[0]111* | 0.003586 |
| NBP[0]125* | 0.005477 |
| NBP[0]138* | 0.005560 |
| NBP[0]153* | 0.004403 |
| NBP[0]166* | 0.004111 |
| NBP[0]181* | 0.003592 |
| NBP[0]195* | 0.003324 |
| NBP[0]209* | 0.003106 |
| NBP[0]222* | 0.002546 |
| NBP[0]237* | 0.002293 |
| NBP[0]251* | 0.002398 |
| NBP[0]265* | 0.001853 |

| Component | Crude oil Composition (Mole Fraction) |
|---|---|
| NBP[0]279* | 0.002036 |
| NBP[0]293* | 0.001978 |
| NBP[0]307* | 0.001683 |
| NBP[0]321* | 0.001514 |
| NBP[0]336* | 0.001484 |
| NBP[0]349* | 0.001434 |
| NBP[0]364* | 0.001315 |
| NBP[0]378* | 0.001229 |
| NBP[0]391* | 0.001142 |
| NBP[0]405* | 0.000960 |
| NBP[0]419* | 0.000743 |
| NBP[0]439* | 0.000807 |
| NBP[0]472* | 0.000814 |
| NBP[0]495* | 0.000248 |
| NBP[0]523* | 0.000064 |
| NBP[0]537* | 0.000223 |
| NBP[0]571* | 0.000158 |
| NBP[0]606* | 0.000158 |

## 18.3 WELL FLUID ARRIVAL CONDITIONS :

**Crude Oil**

***HP Wells: (Number of wells with Tag nos.)***- Loc# **CH/CW/CX/CU & Future wells of** Nadua:

Arrival Pressure, kg/cm$^2$g - 10 to 90
Arrival temperature, °C - 50 – 27

***LP Wells: (Number of wells with Tag nos.)***

Arrival Pressure, kg/cm$^2$g - 10 – 5
Arrival temperature, °C - 50 – 27

## 18.4 CRUDE OIL SAMPLING DATA :

| LOC. / Well no. | LOC:CH | LOC:CU | LOC:CX | LOC:CW |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| Oil%(v/v) | 99.60 | 84.00 | 99.70 | 99.50 |
| Water %(v/v): | 0.4 | 16 | 0.3 | 0.5 |
| API Gravity: - | 30.1 | 30 | 30.3 | 30.1 |
| Pour Point,°C: | 27 | 27 | 27 | 27 |
| pH : | NM | NM | NM | NM |
| Salinity, ppm : | NM | NM | NM | NM |
| -$CO_3$2-, ppm : | NM | NM | NM | NM |
| -$HCO_3$-, ppm : | NM | NM | NM | NM |

**18.4.1 <u>CRUDE OIL CHARACTERISTICS (SUMMARY)</u> :**

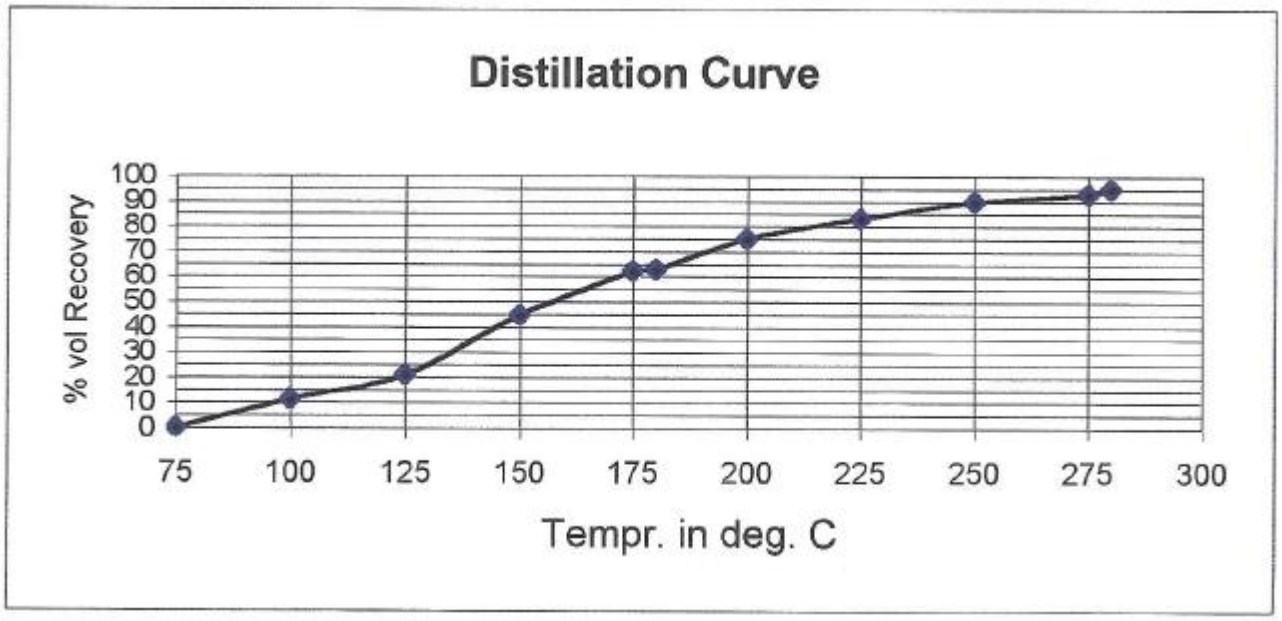
| | | |
|---|---|---|
| Water Content, % v/v | - | (0.4, 16, 0.3, and 0.5) |
| Oil Content, % v/v | - | (99.60, 84.00, 99.70, and 99.50) |
| Specific Gravity of Oil at 60°F | - | 0.8650 |
| API Gravity at 60°F | - | 43.9 |
| Wax content, % w/w | - | NM |
| Asphaltene content, % w/w | - | NM |
| Resin Content, % w/w | - | NM |
| Salinity, lb/1000bbl | - | NM |
| Pour point, °C | - | <6.0 |

**18.4.2 <u>CRUDE OIL DISTILLATION DATA (AS PER IP 24/84)</u> :**

Table 4.5.2-1 Crude oil distillation data

| Temperature, °C | % Recovery |
|---|---|
| IBP = 78 | - |
| 75 | Nil |
| 100 | 11.0 |
| 125 | 21.0 |
| 150 | 44.5 |
| 175 | 62.0 |
| 180 | 63.0 |
| 200 | 75.0 |
| 225 | 83.0 |
| 250 | 90.0 |
| 275 | 93.0 |
| 280 | 95.0 |

| | | |
|---|---|---|
| Class of crude | - | A |
| Residue after distillation, % v/v | - | 4.6 |
| Evaporation loss, % v/v | - | 0.4 |
| Sp. Gravity of residue @ 60°F | - | NM |
| Sp. Gravity of distillate @ 60°F | - | 0.7909 |
| Scotch set point of residue, °C | - | <21 |
| Correlation index | - | 38.34 |
| Characterization factor | - | 11.30 |




**18.5 <u>CRUDE OIL SAMPLING DATA</u> –** LOC#CH

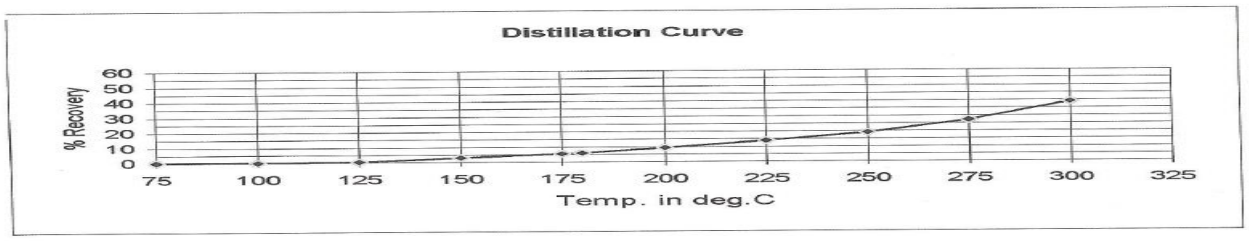
**18.5.1 <u>CRUDE OIL CHARACTERISTICS</u>**

| | | |
|---|---|---|
| Water Content, % v/v | - | 0.4 |
| Oil Content, % v/v | - | 99.6 |
| Specific Gravity of Oil at 60°F | - | 0.8985 |
| API Gravity at 60°F | - | 30.1 |
| Wax content, % w/w | - | 12.1 |
| Asphaltene content, % w/w | - | 1.5 |
| Resin Content, % w/w | - | 5.5 |
| Salinity, lb/1000bbl | - | NM |
| Pour point, °C | - | 27 |

**18.5.2 <u>CRUDE OIL DISTILLATION DATA (AS PER IP 24/84):</u>**

Table 18.5.2-1 Crude oil distillation data

| Temperature, °C | % Recovery |
|---|---|
| IBP = 100 | - |
| 75 | Nil |
| 100 | Nil |
| 125 | 0.5 |
| 150 | 3.0 |
| 175 | 5.5 |
| 180 | 6.0 |
| 200 | 9.5 |
| 225 | 14.0 |
| 250 | 19.0 |
| 275 | 27.0 |
| 300 | 39.0 |
| | |




| | | |
|---|---|---|
| Class of crude | - | E |
| Residue after distillation, % v/v | - | 60.8 |
| Evaporation loss, % v/v | - | 0.2 |
| Sp. Gravity of residue @ 60°F | - | 0.9276 |
| Sp. Gravity of distillate @ 60°F | - | 0.8469 |
| Scotch set point of residue, °C | - | 44 |
| Correlation index | - | 52.25 |
| Characterization factor | - | 11.31 |

### 18.5.3 RHEOLOGY OF RAW CRUDE

Table 18.5.3-1 Rheology of raw crude (by Fann VG meter)

| Temperature, °C | 30 | 27 | 24 |
|---|---|---|---|
| PV (cP) | 30 | 51 | 69 |
| YV (dynes / cm2) | 2 | 6 | 13 |
| Pour point, °C | 27 | | |

### 18.5.4 FLOW IMPROVER TREATMENT

Table 18.5.4-1 Response to Flow improver treatment

| Name of Flow Improver | Flowchem FPD 911 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Flow Improver Dosage | 300 ppm | | | 400 ppm | | | 500 ppm | | |
| Temperature, $^{o}$C | 24 | 21 | 18 | 24 | 21 | 18 | 24 | 21 | 18 |
| PV(cp) | 60 | 70 | 120 | 55 | 65 | 82 | 50 | 60 | 75 |
| YV(dynes/cm$^2$) | 13 | 18 | 43 | 8 | 16 | 38 | 6 | 13 | 23 |
| Pour Point, $^{o}$C | 24 | | | 21 | | | 18 | | |

### 18.6 PRODUCED WATER ANALYSIS

Table18.6-1 Specification of produced formation water

| **Properties** | **Minimum** | **Maximum** |
|---|---|---|
| P$^{H}$ | 7.2 | 8.05 |
| Salinity (ppm) | 3000 | 3500 |
| Carbonate (ppm) | nil | nil |
| Bi-Carbonate (ppm) | 427 | 736 |

## 18.7 DESIGN CAPACITY –TABLE 4.8-1 DESIGN CAPACITY

| WELL FLUID | MAXIMUM | REMARKS |
|---|---|---|
| Oil (KLPD) | 1200 | Note: Lab test reports for wells of NADUA field are as below. |
| Water (KLPD) | 800 | |
| Total Liquid (KLPD) | 2000 | |
| Associated Gas (MMSCMD) | 0.1 | |

| Loc./ Well No. | Loc : CU | Loc : CH | Loc : CW | Loc : CX | NHK#397 |
|---|---|---|---|---|---|
| Source: | Master | Master | Master | Master | Gas Shot |
| Collection date: | 05.04.17 | 05.04.17 | 05.04.17 | 05.04.17 | 05.04.17 |
| Collection time: | - | - | - | - | 2:00 PM |
| Water %(v/v): | 13.0 | 0.5 | 0.6 | 0.5 | 100 |
| Oil %(v/v): | 87 | 99.5 | 99.4 | 99.5 | Nil |
| API Gravity: | 30.5 | 30.3 | 30.2 | 30.2 | - |
| Pour Point °C: | 27 | 27 | 27 | 27 | - |
| pH : | 8.5 | - | - | - | 7.0 |
| Salinity (ppm): | 4200 | - | - | - | 8500 |
| $CO_3^{2-}$ (ppm): | 60 | - | - | - | Nil |
| $HCO_3^-$ (ppm): | 549 | - | - | - | 305 |

## 19 .0 PRODUCT SPECIFICATION-

### 19.1 TREATED CRUDE OIL

| | | |
|---|---|---|
| Temperature, °C | - | 45 - 55 |
| Pressure, kg/cm$^2$g | - | 80-85 (at dispatch pump discharge) |
| BS&W, % w/w | - | 0.2 (maximum) |
| RVP, psia | - | 10 (Maximum) |
| TVP, psia | - | <14.7 |
| Sands, % w/w | - | Nil |

### 19.2 TREATED GAS (ASSOCIATED GAS) – WILL BE USED AS FUEL AND REST WILL BE MADE READY FOR TRANSPORTATION

| | | |
|---|---|---|
| Temperature, °C | - | 50 |
| Pressure, | - | 10 PSIG |
| Liquid carryover | - | 100 ppm (maximum) |
| Particle Size | - | <10 microns |

### 19.3 PRODUCED WATER DISCHARGE

| | | |
|---|---|---|
| Temperature, °C | - | 40 - 50 |
| Pressure, kg/cm$^2$g | - | 70 (1000 psig) |
| Oil in water, ppm | - | 10 (maximum) |

As per Assam State Pollution control board, the produced water discharge shall meet the below as minimum,

| | | |
|---|---|---|
| Total suspended solids | - | < 250 mg/l |

### 19.4 TREATED EFFLUENT WATER

| | | |
|---|---|---|
| Oil in water, ppm | - | 10 (maximum) |
| Sludge content | - | NIL |

**Note: Formation water will be treated for making it suitable for water disposal/injection as per PCB/CPCB norms. The project battery limit will be up to storage of treated water with provision of suitable transfer pumps. No water injection facilities will be considered in the project scope.**

## 20.0 <u>Project Scope and Definition for GGS at East Khagorijan:</u>

A) **PROJECT DEFINITION**: -

DEVELOPMENT OF SURFACE FACILITIES FOR EVACUATION OF OIL AND GAS FROM LOC# TAI, TAP, TAJ & FUTURE WELLS OF EAST KHAGORIJAN & RANGMALA FIELDS. ALSO CRUDE HAS TO BE DEHYDRATED TO MEET 0.2% BSW REQUIREMENT AND FORMATION WATER AND OTHER EFFULENTS FROM THE PLANT MUST BE TREATED TO MEET PCB/CPCB/MOEF NORMS.

B) **Project scope:** Construction of an Oil Collecting station and Field gas gathering station (together named as GGS) to separate Oil, Gas & Water and processing of NA gas. To dehydrate crude to achieve 0.2 BSW and its storage and pumping facility for evacuation. Treatment of produced water to meet PCB/CPCB norms. Non-associated gas to be treated, processed and made ready for transportation through pipeline. Associated gas to be used as fuel and rest to be made ready for transportation through pipelines. **Pipelines from Oil & Gas wells to the proposed plant and crude &Gas Dispatch lines from the proposed plant are not in the Project Battery Limit**. **Procurement of LAND and construction of boundary wall in the land is not in the project scope and will be done/arranged by OIL separately.**

C) **Deliverables:** Complete GGS with five years O&M and all engineering documents, statutory clearances.

D) **Land:** Presently under procurement. Minimum 30 Bighas (33000m2) will be provided.

E) **Timeline:** Project to be completed within 26 months of date of issue of LOA to EPCM.

F) **Type of construction**: Modular with minimum civil permanent buildings, containerised rooms are preferred.

**Summary:**

- Storage of two tanks and One test tank of 160 KL, Bowser loading and pumping facility can be considered
- Modular design to be considered
- No permanent Civil building needs to be considered only the Containrised Office / PMC / Control Room will be considerded which will include; Operator Cabin, PMCC Container, Instrument / Control Cabin, Securiry barrack, Toilet Bunk
- Dehydration facility and ETP needs to be considered
- CPP will be required.

G) The Name plate capacity of the OCS & FGS (WILL BE TERMED AS GGS):

**OIL (KLPD) – 1000 KLPD,**

**Water (KLPD) – 800 KLPD,**

**Total Liquid (KLPD) – 1800 KLPD,**

**Associated Gas (MMSCMD) – 0.1,**

**Non-Associated Gas (NA Gas) – 2MMSCMD,**

- **HP Manifold: 06 for HP wells**
- **LP manifold: 06 for LP wells**
- **NA Gas Manifold: 06 wells**

H) OCS must have the following minimum process:

- Primary Seperation
- Well testing –Test Seperator with Test tank
- Crude oil treating and stabilization
- Dehydration facilities – EET – Heater treater/Dehydrator
- Crude oil storage ( two tanks )
- Crude oil metering and pumping
- Formation/produced water treatment for water injection/disposal with storage – Modular ETP with transfer pumps
- Flare system – enclosed ground non-luminious Flare system will be considered
- Associated gas to be used as fuel and rest to be made ready for transportaion.
- Facility for bowser loading is required
- CODP (crude oil despatch pump) Pumps to be considered

I) OCS will have the following minimum utilities:

- Fire Fighting System – Pumps & Tank
- Power Generation system – CPP (Gas driven gensets) with MCC
- Instrumentaion and Control – Medium/basic level of automation required to meet P&ID & OISD requirements will be cosniedred – Centralized control room will be considered.
- Instrument air compressor system
- Dosing System
- Fuel gas system
- Operator room & Admin building
- CCTV system for survellinace
- Security barrack or facilities
- Potable water facility

J) **Plant Design data:** +/- 20% Design Margin to be followed, interms of % on flow if any.

K) Design Life of plant: 20 Yrs.

L) The associated gas shall be used for captive power, fuel for IWBH and Heater Treater

M) The produced water shall be collected into Storage tanks treated in a ETP for further treatment - To be treated in ETP for making the water suitable for water injection/disposal in wells. Water injection facility is not in the Project scope.

N) No. of Wells feeding the GGS: Presently 02 wells. In future provision to be kept for 6 HP & 6 LP wells. NA GAS – No wells are connected at

present, but in future provision for 06 wells to be kept and production of Rangmala field (LOC TAJ) can be started.

O) Storage Capacity of Crude: 24 hours production capacity is recommended – Maximum TWO tanks OF SUITABLE CAPACITY TO BE considered.

P) Five years O&M to be considerd for the plant.

Q) For FGS: The follwing minimum will be considered:

a. Indirect heater with Choke valve (whether indiviual heater is required for each NA gas well or can be combined for all will be decided later)

b. NAG inlet sepeartor

c. KO drum

d. Gas metering skid

e. Condensate produced in NAG sepeartion will be mixed in crude storage tank.

## 21.0 Process Design Basis for GGS (Oil collecting station and Field gathering station) at East Khagorijan:

**CODES AND STANDARDS (MINIMUM AS APPICABLE)**

Table 21.1-1 Codes and Standards

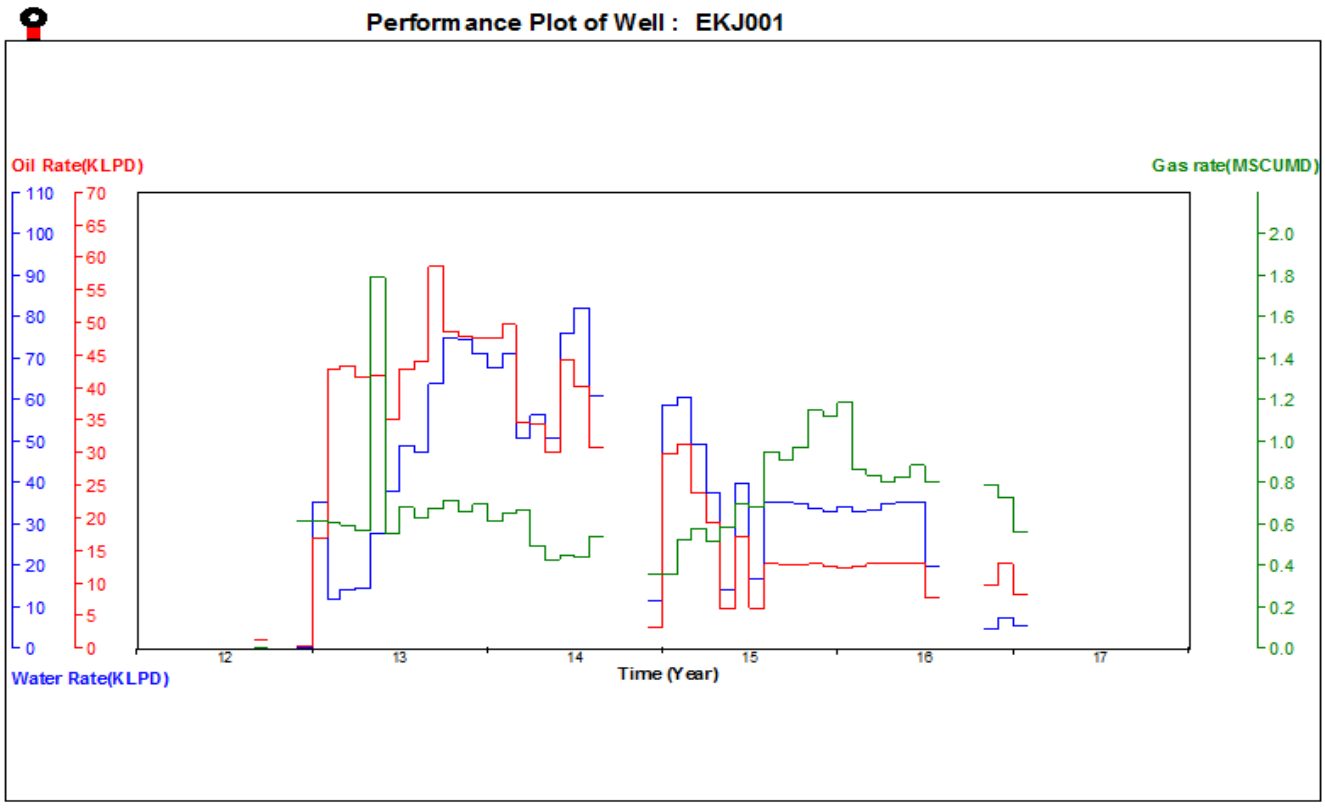
| STANDARDS | DESCRIPTION |
|---|---|
| API 12J | Specification for Oil and Gas Separators |
| API STD 520 Part 1 | Sizing, Selection and Installation of Pressure Relieving Devices in Refineries - Sizing and Selection |
| API STD 520 Part 2 | Sizing, Selection and Installation of Pressure Relieving Devices in Refineries – Installation |
| API STD 521 | Guide for Pressure Relieving and Depressurizing Systems |
| API STD 526 | Flanged steel Pressure Relief Valves |
| API RP 550 | Manual on Installation of Refinery Instruments and Control Systems (Instrumentation) |
| NFPA - 15 | Water Spray Fixed Systems for Fire Protection |
| NFPA - 16 | Installation of Deluge Foam-Water Sprinkler and Foam-Water Spray Systems |
| ASME – B31.1 | Power Piping (Pressure Piping code) |
| ASME – B31.3 | Process Piping |
| ASME SEC VIII | Boiler and Pressure Vessel Code – Rules for Construction of Pressure Vessels |
| API 650 | Welded Steel Tanks for Oil Storage |

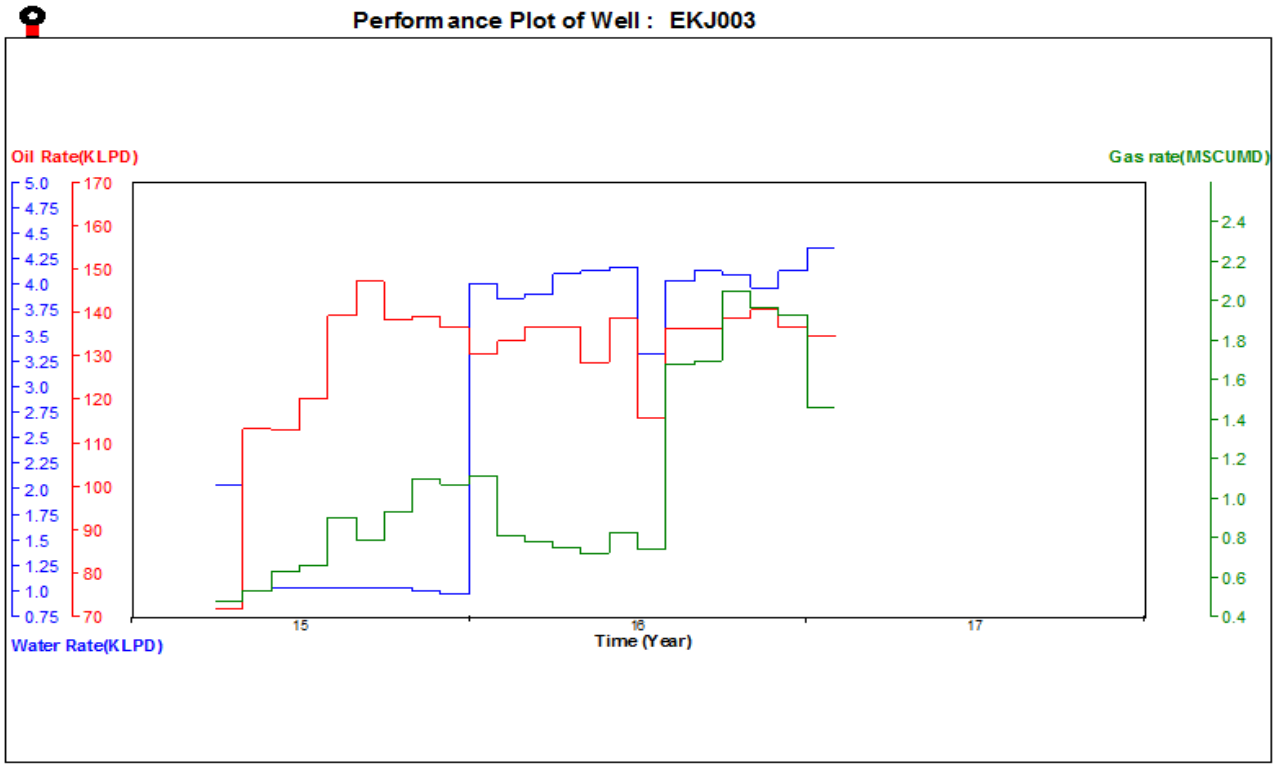
| | |
|---|---|
| API 12K | Specification for Indirect Type Oil- Field Heaters |
| OISD-117 | Fire protection facilities for petroleum depots, terminals, pipeline installations and lube oil installations |
| OMR | Oil Mines Regulations 1984 & amendments as applicable |

## 22.0 RESERVOIR DATA – EXISTING WELLS UNDER PRODUCTION

| **Sl No.** | **Well No.** | **Location** | **Field** | **Current Reservoir Pressure** | **Last Recorded FBHP** | **Res.Temp./ Flowing Bottom** | **Prod Rate (Oil)** | **Prod Rate (Water)** | **Prod. Rate (Gas)** | **GOR** | **% OIL** | **% water** | **API** | **Salinity** | **PH** | **Co3** | **BiCO3** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | EKJ01 | TAI | East Khagorijan | 387.9 Ksc @ 25.08.2016 | 386 Ksc @ 08.05.2013 | 90.3 /100 | 9 | 5 | Almost Nil | 0 | 96% | 4% | | 3600 | 7.5 | 0 | 305 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | EKJ03 | TAP | East Khagorijan | - | 379.7 Ksc @ 22.05.2015 | - / 100 | 146 | 4 | 7600 SCMD | 52 | 98.40% | 1.60% | 27.4 | Density= 0.8901 | | | |
| 3 | RGM01 | TAJ | Rangmala | 391.8 Ksc @ 03.02.2015 | - | 97.4 (27.08.2014 )/ - | | | | | | | | | | | |






## 22.1 GAS COMPOSITION

Table 22.1-1 Gas Composition of Well Fluid

| **Component** | **Gas Composition by Volume** |
|---|---|
| Methane | 85-94 |
| Ethane | 3.94-4.36 |
| Propane | 2.21-2.44 |
| i-Butane | 0.46-0.52 |
| n-Butane | 0.69-0.77 |
| i-Pentane | 0.23-0.26 |
| n-Pentane | 0.16-0.18 |
| Hexane | 0.54-0.59 |
| Nitrogen | 1.08-1.19 |
| $CO_2$ | 0.46-0.51 |
| Gas gravity | 0.62-0.68 |
| Gross Calorific Value (KCAL/SCUM) | 9562-10569 |
| Net Calorific Value (KCAL/SCUM) | 8646-9556 |
| **Total** | **100** |

## 22.2 CRUDE OIL DATA :

Table 22.2-1 Wet Crude Quality

| **Properties** | **Minimum** | **Maximum** |
|---|---|---|
| Density at 15°C | 0.8547 | 0.9236 |
| API gravity | 26 * - Exact will be confirmed during engineering by EPCM | 34 |
| Pour point °C | 0 | 33 |
| Wax content % mass | 6.2 | 15.2 |
| Asphaltene content % mass | 0.2 | 1.4 |
| Resin content % mass | 2.8 | 6.33 |
| Plastic viscosity (cp)/YV (Dynes/sq.cm) at 24°C | 3/<2 | 75/285 |
| Average salinity (ppm) | 2000 | 3500 |

## 22.3 CRUDE OIL COMPOSITION :

Table 22.3-1 Crude Oil Composition of Well Fluid

| **Component** | **Crude oil Composition (Mole Fraction)** |
|---|---|
| Methane | 0.114884 |
| Ethane | 0.005329 |
| Propane | 0.002982 |
| i-Butane | 0.000636 |
| n-Butane | 0.000941 |
| i-Pentane | 0.000318 |
| n-Pentane | 0.000220 |
| n-Hexane | 0.000721 |
| Nitrogen | 0.001454 |
| CO2 | 0.000623 |
| THEOL-55 | 0.000000 |
| H2O | 0.798141 |
| NBP[0]26* | 0.000580 |

| Component | Crude oil Composition (Mole Fraction) |
|---|---|
| NBP[0]41* | 0.002043 |
| NBP[0]54* | 0.002810 |
| NBP[0]68* | 0.002652 |
| NBP[0]82* | 0.002623 |
| NBP[0]97* | 0.002804 |
| NBP[0]111* | 0.003586 |
| NBP[0]125* | 0.005477 |
| NBP[0]138* | 0.005560 |
| NBP[0]153* | 0.004403 |
| NBP[0]166* | 0.004111 |
| NBP[0]181* | 0.003592 |
| NBP[0]195* | 0.003324 |
| NBP[0]209* | 0.003106 |
| NBP[0]222* | 0.002546 |
| NBP[0]237* | 0.002293 |
| NBP[0]251* | 0.002398 |
| NBP[0]265* | 0.001853 |
| NBP[0]279* | 0.002036 |
| NBP[0]293* | 0.001978 |
| NBP[0]307* | 0.001683 |
| NBP[0]321* | 0.001514 |
| NBP[0]336* | 0.001484 |
| NBP[0]349* | 0.001434 |
| NBP[0]364* | 0.001315 |
| NBP[0]378* | 0.001229 |
| NBP[0]391* | 0.001142 |
| NBP[0]405* | 0.000960 |
| NBP[0]419* | 0.000743 |
| NBP[0]439* | 0.000807 |
| NBP[0]472* | 0.000814 |

| Component | Crude oil Composition (Mole Fraction) |
|---|---|
| NBP[0]495* | 0.000248 |
| NBP[0]523* | 0.000064 |
| NBP[0]537* | 0.000223 |
| NBP[0]571* | 0.000158 |
| NBP[0]606* | 0.000158 |

## 22.4 WELL FLUID ARRIVAL CONDITIONS :

**Crude Oil**

***HP Wells: (Number of wells with Tag nos.)***- Loc#**TAI/TAP &Future wells of** East Khagorijan and Rangmala:

| | | |
|---|---|---|
| Arrival Pressure, kg/cm$^2$g | - | 10 to 90 |
| Arrival temperature, °C | - | 50 – 27 |

***LP Wells: (Number of wells with Tag nos.)***

| | | |
|---|---|---|
| Arrival Pressure, kg/cm$^2$g | - | 10 – 5 |
| Arrival temperature, °C | - | 50 – 27 |

**NAG wells:** LOC TAJ

| | | |
|---|---|---|
| Arrival Pressure, kg/cm$^2$g | - | 350 to 400 |
| Arrival temperature, °C | - | 50 – 27 |

## 22.5 CRUDE OIL SAMPLING DATA – AS PER LAB TEST REPORTS OF COLLECTED SAMPLES – WELL NO. EKJO1

### 22.5.1 CRUDE OIL CHARACTERISTICS

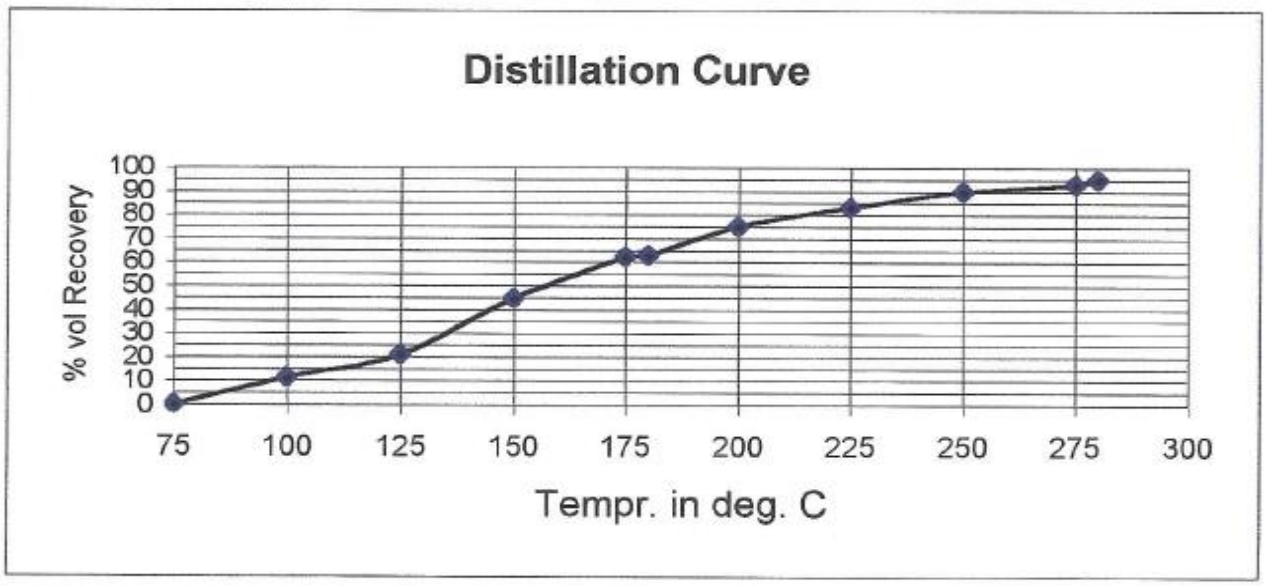
| | | |
|---|---|---|
| Water Content, % v/v | - | 4.0 |
| Oil Content, % v/v | - | 96.0 |
| Specific Gravity of Oil at 60°F | - | 0.8901 |
| API Gravity at 60°F | - | 27.4 |
| Wax content, % w/w | - | NM |
| Asphaltene content, % w/w | - | NM |
| Resin Content, % w/w | - | NM |
| Salinity, lb/1000bbl | - | 3600 |
| Pour point, °C | - | NM |

### 22.5.2 CRUDE OIL DISTILLATION DATA (AS PER IP 24/84)

Table 22.5.2-1 Crude oil distillation data

| Temperature, °C | % Recovery |
|---|---|
| IBP = 78 | - |
| 75 | Nil |
| 100 | 11.0 |
| 125 | 21.0 |
| 150 | 44.5 |
| 175 | 62.0 |
| 180 | 63.0 |
| 200 | 75.0 |
| 225 | 83.0 |
| 250 | 90.0 |
| 275 | 93.0 |
| 280 | 95.0 |

| | | |
|---|---|---|
| Class of crude | - | A |
| Residue after distillation, % v/v | - | 4.6 |
| Evaporation loss, % v/v | - | 0.4 |
| Sp. Gravity of residue @ 60°F | - | NM |
| Sp. Gravity of distillate @ 60°F | - | 0.7909 |
| Scotch set point of residue, °C | - | <21 |
| Correlation index | - | 38.34 |
| Characterization factor | - | 11.30 |



## 22.6 CRUDE OIL SAMPLING DATA – WELL NO. EKJO3

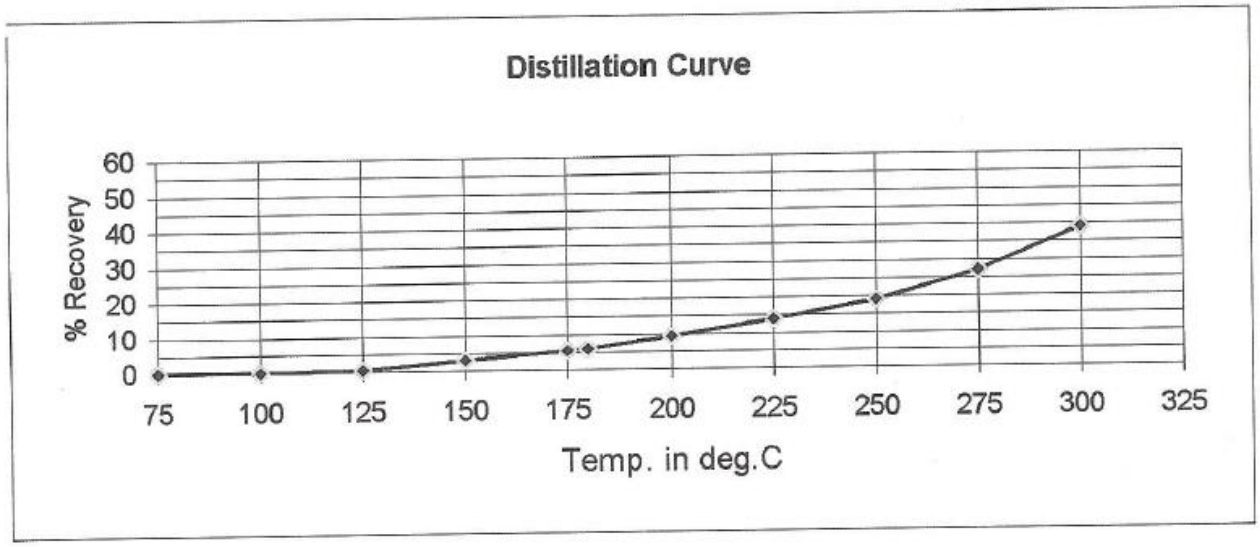
### 22.6.1 CRUDE OIL CHARACTERISTICS

| | | |
|---|---|---|
| Water Content, % v/v | - | 1.06 |
| Oil Content, % v/v | - | 98.4 |
| Specific Gravity of Oil at 60°F | - | 0.8985 |
| API Gravity at 60°F | - | 27.4 |
| Wax content, % w/w | - | 12.1 |
| Asphaltene content, % w/w | - | 1.5 |
| Resin Content, % w/w | - | 5.5 |
| Salinity, lb/1000bbl | - | 3600 |
| Pour point, °C | - | 27 |

### 22.6.2 CRUDE OIL DISTILLATION DATA (AS PER IP 24/84)

Table 4.6.2-1 Crude oil distillation data

| Temperature, °C | % Recovery |
|---|---|
| IBP = 100 | - |
| 75 | Nil |
| 100 | Nil |
| 125 | 0.5 |
| 150 | 3.0 |
| 175 | 5.5 |
| 180 | 6.0 |
| 200 | 9.5 |
| 225 | 14.0 |
| 250 | 19.0 |
| 275 | 27.0 |
| 300 | 39.0 |




| | | |
|---|---|---|
| Class of crude | - | E |
| Residue after distillation, % v/v | - | 60.8 |
| Evaporation loss, % v/v | - | 0.2 |
| Sp. Gravity of residue @ 60°F | - | 0.9276 |
| Sp. Gravity of distillate @ 60°F | - | 0.8469 |
| Scotch set point of residue, °C | - | 44 |
| Correlation index | - | 52.25 |
| Characterization factor | - | 11.31 |

### 22.6.3 RHEOLOGY OF RAW CRUDE

Table 22.6.3-1 Rheology of raw crude (by Fann VG meter)

| | | | |
|---|---|---|---|
| Temperature, °C | 30 | 27 | 24 |
| PV (cP) | 30 | 51 | 69 |
| YV (dynes / cm2) | 2 | 6 | 13 |
| Pour point, °C | 27 | | |
| | | | |

### 22.6.4 FLOW IMPROVER TREATMENT –

Table 22.6.4-1 Response to Flow improver treatment

| | |
|---|---|
| Name of Flow Improver | Flowchem FPD 911 |

| Flow Improver Dosage | 300 ppm | | | 400 ppm | | | 500 ppm | | |
|---|---|---|---|---|---|---|---|---|---|
| Temperature, $^{o}$C | 24 | 21 | 18 | 24 | 21 | 18 | 24 | 21 | 18 |
| PV(cp) | 60 | 70 | 120 | 55 | 65 | 82 | 50 | 60 | 75 |
| YV(dynes/cm$^2$) | 13 | 18 | 43 | 8 | 16 | 38 | 6 | 13 | 23 |
| Pour Point, $^{o}$C | 24 | | | 21 | | | 18 | | |

## 22.7 PRODUCED WATER ANALYSIS

Table 22.7-1 Specification of produced formation water

| **Properties** | **Minimum** | **Maximum** |
|---|---|---|
| P$^{H}$ | 7.2 | 8.05 |
| Salinity (ppm) | 3000 | 3500 |
| Carbonate (ppm) | nil | nil |
| Bi-Carbonate (ppm) | 427 | 736 |

22.8 **DESIGN CAPACITY :**

Table 22.8-1 Design capacity

| WELL FLUID | MAXIMUM | REMARKS |
|---|---|---|
| Oil (KLPD) | 1000 | |
| Water (KLPD) | 800 | |
| Total Liquid (KLPD) | 1800 | |
| Associated Gas (MMSCMD) | 0.1 | |
| NA Gas (MMSCMD) | 2 | |

## 23.0 PRODUCT SPECIFICATION :-

### 23.1 TREATED CRUDE OIL

| | | |
|---|---|---|
| Temperature, °C | - | 45 TO 55 |
| Pressure, kg/cm$^2$g | - | 80-85 (at dispatch pump discharge) |
| BS&W, % w/w | - | 0.2 (maximum) |
| RVP, psia | - | 10 (Maximum) |
| TVP, psia | - | <14.7 |
| Sands, % w/w | - | Nil |

### 23.2 TREATED NA GAS

| | | |
|---|---|---|
| Temperature, °C | - | 50 |
| Pressure, kg/cm$^2$g | - | 30 (PLANTS battery limit) |
| Liquid carryover | - | 100 ppm (maximum) |
| Particle Size | - | <10 microns |

### 23.3 TREATED GAS (ASSOCIATED GAS) – WILL BE USED AS FUEL AND REST WILL BE FLARED

| | | |
|---|---|---|
| Temperature, °C | - | 50 |
| Pressure, | - | 10 PSIG |
| Liquid carryover | - | 100 ppm (maximum) |
| Particle Size | - | <10 microns |

### 23.4 PRODUCED WATER DISCHARGE

| | | |
|---|---|---|
| Temperature, °C | - | 52 |
| Pressure, kg/cm$^2$g | - | 70.3 (1000 psig) |
| Oil in water, ppm | - | 10 (maximum) |

As per Assam State Pollution control board, the produced water discharge shall meet the below as minimum,

| | | |
|---|---|---|
| Total suspended solids | - | < 250 mg/l |

### 23.5 TREATED EFFLUENT WATER

| | | |
|---|---|---|
| Oil in water, ppm | - | 10 (maximum) |
| Sludge content | - | NIL |

**Note: Formation water will be treated for making it suitable for water disposal/injection as per PCB/CPCB norms. The project battery limit will be up to storage of treated water with provision of suitable transfer pumps. No water injection facilities will be considered in the project scope.**

## 24.0 MINIMUM FACILITIES ENVISAGED FOR GGS AT Khagorijan:

The tentative minimum facilities envisaged for fulfilment of objective behind creation of the Group Gathering Station (GGS) based on modular concept are shown below. The section is forwarded to the bidder to visualize the system process and tentative job requirement. The EPCM may suggest better facility/technology, based on their study, to make the system foolproof in all respect. **The process detail of OCS at Nadua will be in similar line to the OCS facility proposed below at GGS Baghjan except for capacity (which is furnished in process design basis for Nadua) and hence is not repeated**:

1. **MINIMUM FACILITY REQUIREMENT**:

1.1. CREATION OF GROUP GATHERING STATION FOR PROCESSING OF WELL FLUID FOR SEPARATION OF OIL GAS & WATER, ALONG WITH STORAGE FACILITIES FOR CRUDE OIL, FORMATION WATER AND SAFE DISPOSAL OF THE PROCESS WATER, TRANSPORTATION OF CRUDE & NATURAL GAS ETC:

**BASIC PROCESS PHILOSOPHY:**

**MAIN PROCESS:** The Group Gathering Station (GGS) is envisaged with a facility for processing 1000 KLPD of crude oil, 800KLPD of water and 2 MMSCMD of non-associated natural gas and separation of the Oil, Gas and water streams. The GGS shall have a storage capacity for 1 days for Dry crude and storage capacity to handle formation water for 1 days & clarified formation water before disposal. Additionally crude oil test tank of capacity for 24 hrs of crude production of one well (maximum production) and crude oil skimming tank of minimum 150 kls capacity shall also be provided. The produced crude oil and gas shall be dispatched to Duliajan at a pipeline distance of approximate 40 kms through crude oil dispatch pumps working at a pressure of 80-85 $kg/cm^2$ and the natural gas produced shall be transported through cross country pipeline of length approx. 40km at pressure >25$kg/cm^2$.

Formation water separated out of the dehydration and other process shall be received in the effluent tanks/formation water tanks of Effluent Treatment Plant. The effluent water from these tanks shall be fed to the Effluent Treatment Plant and upon de-oiling & de-sludging to achieve nil sludge and oil content less than 10 ppm, shall be stored in the clarified water storage tanks. The treated formation water will be disposed/injected in formation water disposal/injection wells. Similarly contaminated water and drain water inside the installation that shall be discharged to the environment shall be treated for removal of oil and pollutants to meet the environment discharge specifications.

The Plant shall be integrated, self-containing, and self-sufficient and will ensure zero discharge of pollutants to the environment. The Crude Dehydration process shall ensure quality stipulation of 0.2% (w/w) or less BS&W content in the treated crude and the Effluent Treatment process shall ensure oil content of less than 10 ppm with NIL sludge content in the treated water. The gas quality after processing and separation of liquid shall contain suspended particle of less than 10 micron in size. The process will be modular in structure both in terms of layout and operation. Each module will be self-containing and all the modules have to be integrated so as to make the overall process a self-sufficient one.

**INSTRUMENTATION:** Instrumentation & Control system of individual modules shall be integrated for control room management of the plant operation in a safe manner and maintain the Desired Performance Level of the Plant. Desired Performance Level of the Plant shall mean uninterrupted trouble-free operation of the entire Plant at designed plant capacity (including the operational availability of standby units, measuring devices, safety and security system, all facilities and other infrastructures) maintaining the criteria i.e. BS&W content of 0.15% or less in the treated crude, suspended particle size in natural gas shall be less than 10 micron as well as oil content of treated formation water and other disposed water less than 10 ppm with NIL sludge content in the output all throughout the plant operation.

**FIRE FIGHTING & SECURITY:** An integrated safety, fire-protection, fire-fighting facility and security system will be provided for the entire plant in accordance with relevant and latest standards of upstream oil industry, Oil Mines Regulation, OISD norms & other prevailing laws, by laws etc. The EPCM will design the plant on the basis of above philosophy and the minimum facilities as indicated in this document.

**WATER STORAGE FACILITY:** Water storage facility has to be created to meet water requirement for day-to-day process, utility/service and fill-up / charging / fire water storage/make-up water for hydrant circuit.

Standby static water storage facility has to be created as in accordance with OISD norms for catering to bulk firefighting water requirement during emergencies. The static water reservoir capacity should also provide the storage for storm water. The effluent water after treatment must meet requisite specification for dispatch to OIL's nearby installation/disposal wells.

**ENVIRONMENT:** The plant premises & boundary will be covered by green plantation and green belt respectively, which will be developed in line with accepted norms for environmental protection in India. A peripheral road will be constructed by OIL outside the boundary wall for security patrolling of the Plant.

The Group Gathering Station shall be interconnected with the various piping network from different fields. Laying of this pipeline is beyond the scope of the consultant. The necessary land maps for the site will be made available at OIL's office for EPCM's visualization of site.

1.2. **SETTING UP OF THE PLANT, IN VIEW OF THE FOREGOING, SHALL INVOLVE BROADLY PROVIDING FOR / CREATION OF BUT NOT LIMITED TO THE FOLLOWING FACILITIES / INFRASTRUCTURE:**

**PROCESS TRAIN**: Two process train of capacity 900KLPD per train for separation of Oil, Gas, Water, Sludge, impurities and stabilization of the well fluid with a provision of 900KLPD future provision. Gas process train is to be designed for production of 2 MMSCMD of sweet natural well head gas along with the crude production train. The gas process train may be designed separately or can be combined with the crude production train by the consultant.

**TANK FARM**: Tank Farm (i.e. Crude Oil Storage Tanks) of safe holding capacity for one days of crude.

**CRUDE OIL DEHYDRATION**: Crude Oil Dehydration, Circulation, Recirculation system facilities. Minimum Electrostatic Crude Dehydration Units c/w demulsifier dozing facility and necessary arrangement as may be required to bring down temperature in Treated Crude Storage Tanks to 40-45 $^0$C

**CHEMICAL DOSING**: Chemical dosing facility at PLANTS battery inlet for prevention and control of growth of SRB (Sulphate Reducing Bacteria), scale formation.

**CRUDE OIL DISPATCH**□□Crude Oil Dispatch Pumps c/w suction charge pumps for transferring crude from treated crude storage tanks through OIL's pipeline to NHK CTF/STF.

□□**EFFLUENT TREATMENT**: Effluent system for collection of separated formation water out of dehydration system & plant effluents and feeding the same to Effluent Treatment Plant.

□□Effluent Treatment Plant with effluent & clarified water storage tanks & de-oiler dozing pumps, for de-oiling & de-sludging of separated formation water out of dehydration process & other plant effluents. Provision should be kept for pumping out/disposal of clarified water.

□□□Waste & Sludge management system.

□□□Indirect Bath Heaters for pre-heating of crude.

□□□Steam Generating/hot oil generation as per requirements for heating of crude in tanks.

□□□Civil & Structural Work.

□□□Piping Work.

□□□□Corrosion prevention system. (Internal corrosion prevention painting both for crude storage and effluent tanks, cathodic protection for crude storage tanks and corrosion inhibitor dosing).

□□□□Fire Protection & Fire fighting with latest technology.

• Source, Storage & Supply System for fire fighting, process & potable water.

□□□Captive Electrical Power Generation, Distribution and Illumination as per latest DGMS, OISD standards etc.

□□Latest Instrumentation technology (viz. DCS, FFBUS, PLC), Control & Communication system for plant management. & fail-safe operation through control room operation.

□□Telephone, Data Communication and Security access Control Facility.

□□Painting of the entire plant.

□□Landscaping, development of green plantation in select areas within the plant boundary, internal ring road & green belt on plant periphery as per norms.

□□ Furnishing of offices & control room.

□□Joint calibration of critical equipment's.

1.3. OIL shall provide for this project a barren piece of land measuring approx. 30bighas (1bigha=14400 Sq-ft)) with boundary wall, gates & approach road to the gate. The barren piece of land need to be filled with earth upto the finished ground level with proper compactness. All the permission & liaison is to be on the consultants scope.

1.4. For power supply please refer to Clause 2.0, sub-clause (VI) below.

1.5. The project site is located in a monsoon-fed belt. Average load bearing capacity of the soil, soil investigation survey & terrace levels of the site, ground water level, average rain fall and seismic data at site etc. will be collected by the EPCM.

LAND MAP & ROAD MAP for the PLANTS will be provided separately to EPCM nearer the time of execution of consultancy Work

2. The following minimum processing facilities is envisaged for the PLANTS. It will be the EPCM's responsibility to recommend and provide any additional facilities that might be required for the satisfactory and safe operation of the PLANTS. The EPCM may however suggest alternative facilities which are cost effective and technically proven. Such alternative facilities are to be given as optional items only.

(I) **DEHYDRATOR**:

The dehydration of the crude shall be carried out with the help of

minimum dual polarity type Electrostatic Emulsion Treater for dehydration of wet crude with total design capacity of maximum crude handling capacity of the PLANTS with 20% standby should be considered. Crude Dehydration Facility shall have skid-mounted Horizontal Electrostatic Treaters of economic size complete with all accessories, instrumentation & control system as well as safety implements and suitably designed to dehydrate the crude broadly of above specifications to an output BS&W level of 0.2% w/w) or less. BS&W content of inlet wet crude may vary widely upto a maximum of 50%v/v.

(II) **CRUDE OIL STORAGE TANKS**:

Design & sizing of the tanks shall be as per the relevant API, OISD & ANSI standards & codes. Tanks must have sacrificial anode type cathodic protection system for prevention of external corrosion. Tanks shall have proper internal coating for thermal resistance and corrosion prevention. Tanks will have all necessary accessories including breather valves, side entry mixers, radar gauging system, heating coils, etc. Painting of tanks should be olive green with camouflage pattern. There should be arrangement for prevention of deposition of sludge and of removing deposited sludge in crude oil tanks.

(III) **EFFLUENT TREATMENT PLANT (ETP):**

The ETP shall be designed on the philosophy of ZERO discharge from the installation. The ETP should be modular in type. Hence, the ETP shall have provision for Treatment of both Formation Water and Rain Water. The output from the ETP plant for the formation water part shall be of the following output limits:

Oil Content : less than 10 ppm.

Sludge Content : NIL

The rain water treatment plant part shall meet the applicable discharge conditions of the Assam State Pollution Control Board and the Treated water will be used for water injection/disposal in wells by OIL.

The ETP shall be of capacity to handle generated formation water and rain water.

(IV) **BOILERS**:

If boilers are required in the process, same shall be of forced draught Natural Gas Burner to get the optimum evaporation or better (Designed) capacity with flame arrestor arrangement and control panel. The flame arrestor assembly shall be so designed that all gasketing and piping are airtight and leak proof so that no leakage occurs to impair the safety of the installation. Suitable water treatment facilities shall be provided for Boiler feed water. All piping, fittings and accessories shall be as per IBR 1950. Optimum numbers of stand-by units should be considered.

If design permits, the boiler can be eliminated with other method serving the purpose with better efficiency and satisfying safety norms.

(V) **INSTRUMENTATION**:

**Concept note of the desired Instrumentation and Control Philosophy in the PLANTS:**

• The operation and control of the process in the proposed PLANTS should be fully automatic and the PLANTS should be designed for unmanned operation. Operators should not be required to control the process parameters of the PLANTS locally by executing manual operations in the field and they will only monitor and supervise the control of the plant from the local as well as remote location.

• The instrumentation and control philosophy of the proposed PLANTS should be based on online integrated advanced communication based control system which takes real-time data of the process and through a two way link between the PLANTS and the control room at a distance location, it allows the operator to control, monitor and operate the plant remotely.

• The main basic process control system (BPCS) of the plant, the individual control systems of all the associated equipment's, vessels like of Emulsion Treaters, bath heaters, separators, online pollution monitoring system etc. tank farm management system and the dedicated TMR based SIS system will have its hardware & software base in the local control room with dedicated HMI and mimic panel. These systems should independently carry out its assigned functions and with being integrated with BPCS system should be able to control the operation of the PLANTS in fully automatic mode.

• It should also be ensured that in case of any emergency, may be due to process excursions/deviations or external sabotage like fire etc the PLANTS can be brought to a safe state and the incoming trains of oil & gas to the PLANTS can be isolated. In that case, it is required to shut the flow line from both the ends i.e. well head end and manifold end in the PLANTS simultaneously.

• Automatic fire detection and suppression systems shall be implemented by using flame detectors, gas & smoke detectors and automatic PLC (Programmable logic controller) based fire suppression systems.

The Technology:

a) Control Systems: Dedicated DCS (distributed control systems), FIELD BUS systems should be used for process control and a separate PLC based safety Instrumented system (SIS system) shall be used for safe shutdown and isolation of the plant in case of emergency.

b) Advanced Communication Systems: The control system of the plant shall have dedicated and redundant communication links between its host system and the servers located at the distant place for controlling the plant, communication links can be Optical Fibre/GSM/GPRS and VPN based internet.

Each major units of the plant will be controlled by individual PLCs. These individual PLCs will be connected to the DCS/ Master PLC in the control room. This central DCS/PLC will have MMI facility so that operator will be able to generate the commands/ view status on Operator interface stations. The individual PLCs shall be provided with dual redundancy at processor and communication level. The DCS / Master PLC control room shall have the Process Mimic panel, control system panel, Marshalling panel, Engineer's workstation, Operator's workstation, PC, Printers and other Hardware accessories for continuous monitoring, logging and controlling various critical parameters of the process. Engineering workstation shall be additionally configured for working as Operator Workstation also.

The SCADA software of DCS/ Master PLC at the control room shall be provided with all available features.

EPCM shall design dual redundant ONLINE UPS with sufficient capacity to provide 6 hours power back -up.

DCS / Main PLC shall have the provision for connectivity to Central SCADA system at DULIAJAN.

All the field instruments should be designed and manufactured for intrinsic safety and suitable for operation in Class I, Division I&II, Group C&D environment and should be certified by CMRI (Central Mining Research Institute) /ERTL and approved by Directorate General of Mines Safety (DGMS).

EPCM needs to clearly define the installation, commissioning & calibration procedures for all field instruments, DCS system, PLC etc. as per international instrumentation practice.

Instrumentation and control system with a provision for accommodating 20% extra I/O in future.

(VI) **ELECTRICALS AND ILLUMINATION**:

Power for entire loads of the installation shall be made available from the Captive Power Plant (CPP) where suitably designed Low voltage Gas Engine Driven (GED) Genset shall be installed. These GED Gensets shall be of similar capacity with the provision of synchronization facility to cater the entire power requirement of the installation. While sizing the Genset capacity, EPCM has to take 20% future load growth provision.

The electrical equipment's for hazardous areas shall be selected as per IS5571 and petroleum rules.

EPCM shall cover the basic requirement of design and engineering of electrical system together with project design criteria and data sheets.

The design, installation, testing & commissioning shall be as per

established codes, standards and sound engineering practices. The latest edition of these shall be followed

The electrical equipment for hazardous areas shall generally be suitable for gas group IIA & IIB and temperature classification T3 as applicable to the selected type of explosion protection.

All electrical system components shall be sized to suit the maximum load &shall ensure that voltage of 415V, 3 ph, 50Hz available at load distribution terminals under the worst operating conditions. Accordingly, the maximum simultaneous consumption of power, required by continuously operating loads shall be considered and an additional margin shall be taken into account for intermittent service loads, if any.

The amount of electrical power consumed by each process unit shall be calculated for its operation at the design capacity.

The equipment in general shall conform to relevant Indian Standards and shall be suitable for installation and satisfactory operation in the service conditions mentioned in project design data.

If not specifically mentioned therein, a maximum ambient temperature of 41 Deg. C and an altitude not exceeding 1000 meters above mean sea level shall be taken into consideration.

The EPCM should plan illumination with latest energy efficient industrial type of luminaries and techniques and should ensure that minimum efforts are required for the maintenance of the lighting system. As far as possible EPCM should try to cover the entire area with High Mast lighting system (30 Meter). The EPCM should give details of the average level of illumination considered for different areas and buildings/sheds.

Search Lighting with revolving facility shall be considered at the top of the watch towers along the entire periphery. For hazardous area, suitable type of FLP luminaries along with accessories certified by CMRI and approved by DGMS for gas group IIA & IIB shall be provided.

The lighting system should conform to relevant IS, Codes and practices.

The voltage for lighting shall be ~250V (Indian standard) phase to phase and accordingly suitably rated Transformers and related switchgears shall be provided.

Lightning protection generally shall be provided for the equipment, structures and buildings, which are higher than 20 meters.

**IMPORTANT NOTES**:

□□All electrical equipment viz. motors, transformers, light fittings,

switches, junction boxes etc. used in hazardous area must have CMRI certification & DGMS approval for gas group IIA & IIB and conform to IS -2148 and area classification IS 5572. All Electrical Equipment's& luminaries must have DGMS logo embossed on their body.

All Imported Electrical Equipment's to be installed in Hazardous area must have CMRI certification or the certification from the country of origin of the equipment and DGMS approval.

The EPCM/EPC has to indicate all the IS codes for the relevant equipment, materials and execution of jobs.

All the electrical items should be of OIL's Approved make.

All the electrical jobs shall be carried out under the supervision of competent and experienced Electrical Engineer. The technicians engaged in the erection, testing and commissioning jobs should possess valid requisite Electrical license issued by State Licensing Board.

All electrical Panels, Switchgears &equipment's shall be equipped in a safe condition especially inside cement concrete house or sheds.

All motor and lighting circuits must be protected by suitably rated ELCB/ELRs.

The following documents are required:

A) Entire Load Details along with the data for Connected load, Running Load, Maximum Demand.

B) Single Line Diagram of Power Distribution Network with complete ratings of switchgears/components.

C) General arrangement Diagram & Layout schematic diagram.

D) Details of all the Electrical Equipment's viz. Motors, Panels, Switchgears, MCC, Light fittings, cables etc. along with Manufacturers' catalogue.

E) Cable Schedule.

F) Earthling Layout Diagram along with details of Electrodes and straps.

G) Complete Illumination plan showing the positions of High masts, Lighting poles/structures and type & rating of Luminaries, Lighting Transformers and Related Switchgears.

In addition to above all electrical equipment intended for use in hazardous areas must be certified by CIMFR and approved by DGMS Dhanbad as flameproof and weatherproof for use in Zone-1, gas group-IIA & IIB of oil mines. Imported flameproof electrical equipment must also be approved by DGMS- Dhanbad.

(VII) **FIRE FIGHTING & PROTECTION FACILITIES**:

a) Entire hazardous areas of the PLANTS shall be covered with Fire Water ring main pressurized at 7 Kg/cm2 residual pressure with the provision of Diesel pump(s) conforming to BIS standard. Capacity of diesel pump shall be of minimum 410 m3/hr. each. All the pumps shall be in auto mode. The ring main shall have water cum foam monitors & hydrants at a regular spacing as per the relevant norms with necessary hose boxes along with type 'B' synthetic hoses and nozzles. The entire fire water ring main shall be maintained at 7 Kg/cm2 pressure at a hydraulically remotest point with the help of automatic electrical motor driven jockey pump. The auto system shall have a hydro-pneumatic tank and a compressor along with the jockey pump.

b) The jockey pump shall start automatically when level in the hydro- pneumatic tank falls below the low level and shall stop when normal level in the tank has been restored. Pressure switches are to be provided in the hydro-pneumatic tank for automatic operation of the air compressor.

c) Moreover, for jockey pump duty type of the motor shall be selected based on the cycle of operation of the jockey pump. If felt, a timer can be introduced in the control circuit to keep the motor running for a predetermined time after each automatic start to avoid too frequent motor operation.

d) For tank cooling purpose, multi-feeder type medium velocity water spray/drenching system with triple ring arrangement shall be provided for each crude oil tanks. Design can be carried out for better option than specified.

e) Foam system for tank protection shall be of semi-automatic type with centralized foam storage facilities (having UL listed fluro protein foam with foam filling pump) with online foam induction arrangement through suitable foam inductor/proportioner. Provision for alternate foam pouring arrangement through fire tender in case of failure of the semi-automatic system shall be made. All the foam equipment (foam pump, maker, inductor, proportioner etc.), piping, fitting, foam tanks etc. shall be of stainless steel of suitable grade. This is a minimum requirement, consultant can design for better option.

f) Entire fire hazard area shall be covered with fire detection and alarm system addressable at control room with manual call points at some strategic areas.

g) Automatic fire detection and alarm system shall be provided for control room.

h) At least two nos. mobile 1000 GPM monitor shall be provided in the installation and provision to operate these monitors shall be made at some strategic point in the fire water ring main near crude oil tank area. The actual nos. will be designed as per OISD 189 standards.

i) All other design related firefighting shall be governed by OISD 189.

j) Apart from above entire PLANTS shall be equipped with first aid firefighting equipment as per OISD - 189.

k) All the above firefighting systems/facilities shall conform to NFPA, OMR, BIS, and OISD 189 whichever is stringent.

(VIII) **CAPTIVE POWER PLANT**:

The EPCM shall design the Captive Power Plant (CPP) to cater the Power for entire loads of the installation, where suitably designed Low voltage preferably Gas Engine Driven (GED) Genset shall be installed. These GED Gensets shall be of similar capacity with the provision of synchronization facility to cater the entire power requirement of the installation. While sizing the Gensetcapacity, Consultant has to take 20% future load growth provision. Arrangement shall be made to add similar capacity of Gen set in future. Gen set running philosophy will be 100% running with minimum 50% standby. Fuel (natural gas) required for the Gen Set will be provided by OIL. The Generating Set should have acoustic enclosure to reduce sound pollution to the optimum level (i.e. 75 db at one meter distance from acoustic enclosure). Around five nos. parameters of Gen Set (e.g. RPM, Voltage, Frequency, Water temp., Lube oil pressure etc.) will be monitored from central control room. Separate sound proof AC control room with panel board along with a service bay for maintenance Work will be required at the power plant. A suitable sized overhead crane with palm top facility should be provided at captive power plant for maintenance Work. Provision should be kept for future addition of new unit. Control room panel board will have battery powered back up support for operation.

(IX) **CRUDE OIL DISPATCH PUMP**:

Suitable sized hazardous area compatible crude oil dispatch pumps with 30% standby units should be installed in one row to transfer produced crude oil from the PLANTS. As the crude oil will be dispatched to a distance of around 35-40 km, so, if required, DGMS approved electrical motor driven Centrifugal Charge Pump should be provided against each pumping unit with two additional units as standby. The pump units must be isolated by the sound barrier to arrest any sound pollution to the optimum level (i.e. 75 db at one meter distance from acoustic enclosure). The pump units should be identical and of same Make and Capacity for better and ease of maintenance. All pump units are separated with prime mover by a fire wall. A suitable sized overhead crane with palm top facility should be provided at pump house for maintenance of both prime movers and pumps. All necessary parameter of pump and engine (e.g. RPM , Water Temp., Lube oil pressure, etc of prime mover and dispatch rate, suction pressure, Delivery pressure, RPM etc of pump etc.) Will be monitored at central control room. PLC control panel should be installed as a safety feature to the pump.

Provision should be kept in the pump shed for future addition of new units. The natural gas available at site may contain crude oil for which suitable filter units should be installed.

(X) **WATER SUPPLY SYSTEM**:

a) Source of water: Ground water (Deep Tube Well / Shallow Tube Well

b) Requirements of water: b1) Potable water (as per BIS 10500)

b2) Industrial water

Necessary arrangements are to be done for treatment of raw water including iron removal filters which is available at site to use it as potable and industrial purpose.

b1) Potable water: Potable water will be required to cater 80 persons at a time. Out of these 80 persons, 60 persons will be from security that will be staying inside plant boundary in security barrack.

b2) Industrial Water: Industrial water will be required for different equipment as per design / requirement of the plant. Special arrangement will be required to make the industrial water Ironfree along with other treatment processes deemed fit for industrial purpose.

c) Overhead water storage Tank: Two separate Overhead Storage Tanks of adequate capacity for potable and industrial water should be provided:
- One for storage of potable water (in two compartments).
- One for storage of industrial water (in two compartments).

(XI) **WASTE & SLUDGE TREATMENT FACILITY**:

Sludge treatment facility of the storm water is required. The storm water flow should be closed system. The main outlet of the storm water, after necessary separation of wastes will be lead to the bulk fire water reservoir. Since the site falls in a heavy monsoon felt area, during extreme rainy season, the excess rain water from the storm water drain may not be possible to accommodate in the ground water reservoir. Under such circumstances the excess rain water will be injected into the disposal wells through clarified water delivery line.

Oily Sludge Disposal Pit:

Provision for disposal & storage of oily sludge in a concrete, HDPE lined pit to be kept in the installation. Provision for leach ate collection ground water monitoring to be kept around the Sludge Pit.

(XII) **DATA COMMUNICATION AND SECURITY ACCESS CONTROL FACILITY:**

(a) DATA COMMUNICATION / ERP CONNECTIVITY:

For data communication / ERP connectivity the facility should include a communication tower along with nearby free ground area radius of approx. 12 m, concrete platform for installing a VSAT antenna (data will be provided during design). If the Main office

rooftop is available, it will be a better option for installing the VSAT antenna.

(b) Intrusion detection / Security control system:

The EPCM should study the complete requirement of the latest Security Control System for the PLANTS. The system should have surveillance camera's placed along the periphery of the campus and all entrance points which should be monitored at security gate and control room and recorded centrally or at a remote location through IP network with a facility to take backup in standard video format.

(c) Telephone:

Radio Communication backbone link in license free 5.8 GHz band and media gateways along with necessary infrastructure like tower, civil works etc is to be provided. The installed system should be compatible with the systems already installed in Duliajan. Provision of telephones from other service providers is to be made for alternative communication for control room and IM's room. Intrinsically safe wireless walkie-talkie sets with license will be provided by the EPC Contractor for interplant communication. Intrinsically safe (DGMS approved) telephones will be provided for installation in hazardous area within the PLANTS complex.

(XIII) **CIVIL & STRUCTURAL:**

The scope defined against this para shall only involve Basic Engineering. EPCM should carry out the detailed planning & design of Civil and structural works as per the Guide Lines of National Building Code of India and Road works as per the IRC (Indian Road Congress) & Guidelines of Ministry of Road Transport and Highway (MORTH) taking into account of all recent amendments and should prepare specifications and estimates for execution of the all civil structure are be done as per relevant IS codes. The Scope of the Work includes the following:

(a) Necessary Soil investigation.
(b) Surveying, Planning & designing of site development plan
(c) Architectural plan & detailing of structures.
(d) Structural analysis and design.
(e) Design for sanitary plumbing.
(f) Detail of design of fittings & fixtures for as per requirement of electrical items of works.
(g) Detail interior & landscaping planning & designing.
(h) Planning & designing of drainage system.
(i) Designing of security System.
(j) Planning and designing of internal road networks.
(k) Foundations for various equipment's.

(l) Preparation detail working drawings including incorporation of modifications during the course of execution of the project.

(m)Preparation of detail specifications, items of Work and estimates for the jobs. Specification and items of rate may be as per CPWD-DSR Rate with incorporation of necessary cost index for this area for the item rate. Further items not covered in the aforesaid Schedules to be based on prevailing Govt. Schedules of items and rate of the area of the project/ market rate analysis which should be supported with proper documents.

(n) Getting the final approval drawings from OIL before release for execution.

(o) All other civil jobs for successful completion of the project.

**FEATURES:**

a) Green Belt: One green belt will be created around the perimeter of the PLANTS (if land is available for the same).

b) The Building shall be designed as per the provision of relevant IS Codes. Earth quake and wind load to be considered as per the provisions of IS codes including IS: 1893, IS: 875, IS: 13920, IS: 4326

Special importance to be given while designing the structure that it is not damaged to the earthquake of intensity equivalent to the highest one of this area( as per the past history).

c) Buildings and other structures & Sheds:

A suitable modular containerized room as the Control Room, Engineer room, Staff room, Electrical substation and UPS room, Canteen, should be provided. The Control room, and the Engineers' office must be air-conditioned.

A suitable containerized room for the operating Staff ( 20 nos.) with bedding facilities, lavatory facility, cooking facilities, etc.

Prefabricated structure is especially preferred for the installation wherever possible.

Landscaping: The details of landscaping will be forwarded to OIL for necessary approval.

**SCOPE:**

A) SOIL INVESTIGATION: EPCM shall arrange to do detail soil Subsurface investigation through an experienced and recognized institute approved by OIL , for foundations according to the guidelines of IS 1892. EPCM shall arrange to do all the necessary test required for construction of civil engineering facilities for the PLANTS according to IS 2720 which shall include soil characteristics, ground

water table level, safe bearing capacity and recommended type of foundations for various types of structures proposed for the project, electrical resistivity test , Soil Liquefaction effect at earthquake motion considering provisions of BIS codes. The final report of soil investigation is required to be submitted both as hard and soft copy for scrutiny and approval of OIL.

B) EPCM shall arrange to do topographical survey through an experienced and recognized institute approved by OIL for preparation of contour map, drainage pattern map of that area. Nearby National Highway level, HFL and other metrological data shall be also collected. Metrological data shall be collected from concerned authority like metrological deptt of India or other authentic source. EPCM shall suggest storm water drainage outlet point for the project site. The topographical maps, contour maps etc shall be prepared both in OIL local co-ordinate and Global coordinates in Auto CAD. EPCM shall suggest FGL for the site and volume of earthwork required. The final topographical survey report and drawings is required to be submitted both as hard and soft copy for scrutiny and approval of OIL.

C) EARTH FILLING, GRADING & LEVELLING:

Earth filling to be planned by EPCM and executed by site Contractor to provide a new Filled up Ground Level and the newly developed ground level will be called as Finished Ground Level (FGL) on completion of filling and compaction up to 95% of proctor density. The Scope of the Work of EPCM also includes preparation of detail contour map of the whole PLANTS- site and finalization of FGL based on following properties:

i. Preparation of contour map of the whole area in a 5.0m X 5.0m grid. And finalization of FGL.

ii. The lowest level of the FGL will be 0.5m above the Highest Flood Level or the existing well plinth of Location TP. The FGL will have a uniform Gradient from the middle of the site and it will be 1:500 in longer direction and 1:400 in shorter direction.

iii. The Final FGL of the whole is to be shown in the contour map in a 5.0m x 5.0m grid.

iv. Calculation on Earth filling, grading, leveling will be based on the FGL.

D) Design and construction of pile foundations if required shall be carried out as per relevant IS & other codes.

E) The effect of ground water table shall be duly considered while designing the structures including the various foundations.

F) Usage of in-house developed software packages shall not be

permitted in analysis and design. Only STAAD-III/ STAAD PRO or any other standard software compatible with the provisions of IS codes shall be used for analysis and design of the structures.

G) Other Points: All permanent type CIVIL buildings (if any) shall be RCC/Steel framed structure. Minimum grade of concrete used for various types of structures, shall be M20 (Except drains).

I)Roads, shoulders & site finish and Pavements: Roads shall be provided as per approved general arrangement and OISD & OMR and at other places wherever required for movement of vehicles, access of trucks/fire tenders, approach to storage, plant and loading gantry areas and various units/facilities, unloading area, product movement etc. Internal and Ring /Peripheral Roads should be such that two fire tender can pass at a time. The road layout shall be developed indicating the road top levels, road width etc. keeping in view heavy vehicle forward/backward movement and placement. The carriageway width of all the roads shall be 5.5 M for main road and 4.5 M for sub-ways. The roadway width shall be 8.5 M for main road, 6.5 M for sub-ways which includes side berm of 1.5M &1.0M width on either side respectively.

J) Electrical/ Instrumentation Trenches, Cables and Road Crossings

□□□□□□□□RCC cable trenches to be provided in the plant area.

□□□□□□□Buried/brick masonry, cable trenches.

□□□□□□□Cable crossing at roads.

K) Quality Control:

Detail process of monitoring the quality of the job to be farmed and furnished along with quality control measures to be taken at various stages for different types of materials including necessary testes to be carried out for quality assurance. These are to be in line with standard norms, APWD/CPWD/CVC Guide lines. Certificates for quality assurance for all building materials utilize shall be from appropriate authorities.

(XIV) **INFRASTRUCTURE FOR SECURITY REQUIREMENTS:**

Standard RCC/Brick Work security huts or containerized modular pre-fabricated, sufficient nos. of watch towers to cover the entire boundary equipped with swive type search-lights of adequate power. The rooms should be well furnished with cupboards, beds, chairs, tables etc. The windows should have iron grills. There should be an Inspector's room and one strong room in the security barrack. A parade area should be provided in front of the barrack. Hooters should be installed at the entrance security gate for security alarm. Alternate hooter (manually operated) besides the electrically operated hooter should also be required in the installation. CCTV camera (installed at the watch towers) monitor

should be installed at Control Room and main gate Office.

(XV) **GENERAL SCOPE:** List of recommended spares, list of special test equipment for maintenance should be provided. Designing of Smoke/Heat Detectors, online Gas Detectors, Flame Detectors, hooter etc. as required for the safe and efficient operation of the plant. EPCM needs to design Instrumentation Earthing system separately than the Electrical Earthing system. Scope of EPCM shall include the supervision of Installation and Commissioning of all the Field Instrumentation, DCS system, Individual PLC etc. EPCM needs to specify clearly for supplying all the necessary Software licenses along with the supply.

All pneumatic system will be powered by dry compressed air. A suitable compressed air supply system comprising of Air Compressors (1 running & 1 Stand by), Air filter, dryer and Air tanks will be provided for.

**ANNEXURE-A**

## LIST OF STANDARDS

### A) STANDARDS AND SPECIFICATIONS

Latest editions of the codes enlisted below shall be followed in addition to the Codes & Standards mentioned in specifications mentioned of the bid:

**American Gas Association (AGA)**

AGA Report No. 3 Orifice Metering of Natural Gas

AGA Report No. 8 Compressibility and Super-compressibility for Natural Gas and other Hydrocarbons.

AGA Report No. 9 Measurement of Gas by Multi-path Ultrasonic Meters

**American National Standards Institute (ANSI)**

ANSI B 2.1 Pipe Threads

ANSI B 16.5 Steel Pipe Flanges, Flanged Valves and Fittings

B 16.10 Face to Face and End to End Dimensions of Ferrous Valves

B 16.34 Hydrostatic body and leak testing of isolation valves.

B 16.37 Hydrostatic Testing of Control Valves

B 16.104 Control Valve Leakages

FCI 70.2 Leak Testing of Control Valves

ANSI C 96.1 Temperature Measurement Thermocouples

ANSI B 1.20.1 Pipe Threads, General Purpose

MC 96.1 Temperature Measurement Thermocouples

**American Petroleum Institute (API)**

API 6D Specification for pipeline valves

API 6FA Fire Test for Valves

API RP 14C RP for Analysis, Design, Installation and Testing of Basic Surface Systems on Offshore Production Platforms.

API RP 14F RP for Design and Installation of Electrical Systems for Offshore Production Platforms

API RP 14G RP for Fire Prevention and Control on Open Type Offshore Production Platforms

API RP 500 Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class 1, Division 1 and Division 2

API RP 520 Sizing, Selection and Installation of Pressure Relieving Devices in Refineries, Part I and Part II

API RP 521 Guide for Pressure Relief and Depressing Systems

API RP 526 Flanged Steel Safety Relief Valves

API RP 527 Commercial Seat Tightness of Safety Relief valves with Metal to Metal Seats

API RP 550 Manual on Installation of Refinery Instruments and Control Systems

API RP 551 Process Measurement Instrumentation

API RP 552 Transmission Systems

API RP 554 Process Instruments and Control

API RP 555 Process Analyzers

API 598 Valve Inspection and Testing

API Standard 2000 Venting Atmospheric and Low Pressure Storage Tanks: Non-refrigerated and Refrigerated.

API 1101 Measurement of Petroleum Liquid Hydrocarbons by Positive Displacement Meter
API RP 2001 Fire Protection in Refineries

API 2534 Measurement of Liquid Hydrocarbons by Turbine Meter Systems

API Manual of Petroleum Measurement Standards –

Measurement of Crude Oil by Coriolis Meter

**American society of Mechanical Engineers (ASME)**

ASME PTC 19.3 Performance Test Code Temperature Measurement

**American Society for Testing and Materials (ASTM)**

ASTM A269 Stainless Steel Tube

ASTM A276.316L Stainless Steel Fittings

ASTM 370 Standard Test methods and definitions for Mechanical Testing of steel products

ASTM 450 General Requirements for Carbon, Ferritic Alloy, and Austenitic Alloy Steel Tubes

**British Standards**

BS 1904 Specification for industrial platinum resistance thermometer sensors

BS 4937 International Thermocouple Reference Tables

BS 5501 Electrical Apparatus for Potentially Explosive Atmospheres

BS EN 60529 Specification for degrees of protection provided by enclosures (IP) codes

**Indian standards for Hydrocarbons and Mines.**

CMRI Central Mining Research Institute.

DGMS Director General of Mines safety.

OISD Oil Industrial Safety Directorate.

OMR Oil Mines Regulation. (Latest edition)

**International Electro-technical Commission (IEC)**

IEC STD 801 Part 3 – EMI and RFI Immunity

IEC 60079 Electrical Apparatus for Explosive Gas atmosphere

IEC 60092-373 Shipboard flexible coaxial cables

IEC 60092-359 Specification for insulation and sheath of electric cables

IEC 60227 Polyvinyl chloride insulated cables of rated voltages up to and including 440/750 V

IEC 60331 Fire resisting characteristics of electric cables

IEC 60332-1 Tests on electric cables under fire conditions Part I: Tests on single vertical insulated wire or cable

IEC 60332-3 Tests on electric cables under fire conditions Part II: Tests on single small vertical insulated copper wire or cable

IEC 61508-1-7 Functional safety on electrical / electronic / programmable electronic safety-related systems

IEC 61000-4-2 Electromagnetic Compatibility (EMC) –

Part 4: Testing and Measurement Techniques –
Section 2: Electrostatic Discharge Immunity Test

IEC 61000-4-3 Electromagnetic Compatibility (EMC) –
Part 4: Testing and Measurement Techniques –
Section 3: Radiated, Radio-Frequency, Electromagnetic Field Immunity Test

IEC 61131-3 1993 Programmable Controllers –
Part 3: Programming languages

IEC 61158-2 Fieldbus Standard for use in Industrial Control Systems

**Institute of Electrical and Electronic Engineers (IEEE)**

IEEE STD.472 Surge Withstand Capabilities

IEEE C37.90.1 Standard Surge Withstand Capability (SWC) Tests for Protective Relays and Relay Systems

IEEE 730 Standard for Software Quality Assurance Plans Revision of IEEE Std 730-84 and Redesignation of IEEE 730.1-89;

IEEE Computer Society Document

IEEE 828 Standard for Software Configuration of Management Plans

IEEE 1042 Guide to Software Configuration management IEEE Computer Society Document

**Instrumentation Systems and Automation Society (ISA)**

ISA S-5.1 Instrumentation Symbols and Identification
S-5.2 Binary Logic Diagrams for Process operations
S-5.4 Instrument Loop Diagram
S 7.0.01 Quality Standard for Instrument Air
S-20 Specification Forms for Instruments
S-50.2 Fieldbus Standard
ISA/ANSI-S 84.01 Application of Safety Instrumented Systems for the Process Industry
ISA 912.13 Part I: Performance Requirements, Combustible Gas Detectors
Part II: Installation, Operation and Maintenance of Combustible Gas Detectors

ISA S 71.01 Environmental Conditions for Process Measurement and Control Systems: Temperature and Humidity
ISA S 71.04 Environmental Conditions for Process Measurement and Control Systems: Airborne contaminants
ISA S 75.01.01 Flow equations for sizing control valves
ISA S 75.01.03 Face to Face Dimensions for Flanged Globe Style Control valves

**International Organization for Standardization (ISO)**

ISO 5167 Measurement of Fluid Flow by means of Orifice Plates
ISO 9000-3 Quality Management and Quality Assurance Standards-Part- 3: Guidelines for the Application of ISO 9001 to the Development, Supply and maintenance of Software First Edition
ISO 9001 Quality Systems: Model for Quality Assurance in Design, Development, Production, Installation and Servicing Second Edition
ISO 9004-1 Quality Management and Quality System Elements-Part 1: Guidelines First Edition

**National Association of Corrosion Engineers (NACE)**
NACE MR 0175 Sulfide Stress Cracking resistant metallic materials for oilfield equipment

**National Electrical Manufacturers Association (NEMA)**
NEMA 250 Enclosures for electrical Equipment (1000 Volts maximum)

**National Electric Code (NEC)**

**National Fire Protection Association (NFPA)**

NFPA 70 National Electrical Code
NFPA 1 Fire Protection Code
NFPA 72 E Automatic Fire Detectors
NFPA 496 Standard for Purged and Pressurized Enclosures for Electrical Equipment

**Other Bodies**
Report EE170E.98 ER & E Version 1.0, Alarm Management Guidelines
Engineering Equipment Materials Users Association (EEMUA) publication No. 191, Alarm Systems – a Guide to Design Management and Procurement

All goods and services supplied shall meet all applicable local and international regulations on health, safety and environmental issues.

**B) Specific Codes and Standards for Instrumentation:**

The design, manufacture, inspection, testing and installation of all equipment and system covered under this project shall conform to the latest editions of codes and standards at the time of procurement. Few of them are:

| | | |
|---|---|---|
| IEC 801.4 | - | Electromagnetic compatibility for industrial process measurement& control equipment. |
| IEC 529 | - | Classification of degree of protection provided by Enclosures. |
| NEC | - | National Electrical code. |
| NFPA-496 | - | Purged and pressurized enclosures for electrical Equipment. |
| ISA-S51.1 | - | Process Instrumentation Terminology |
| ISA-S5.2 | - | Binary Logic diagrams for process operations. |
| ISA-S5.3 | - | Graphic symbols for Distributed control/Shared display instrumentation/Logic and computer system. |
| ISA-S5.4 | - | Instrument Loop Diagrams. |
| ISA-S18.1 | - | Annunciator Sequences and Specifications |
| ISA-RP55.1 | - | Recommended practice-Hardware testing of digital process computers. |
| ISA-S71.01 | - | Environmental conditions for process measurement & control systems-Temperature & Humidity. |
| ISA-S71.04 | - | Environmental conditions for process measurement & control systems –Airborne Contaminants. |
| ICS-6 | - | Enclosures for Industrial control and systems |

**EN500014/IEC-79/API-500- Explosive Area Classification**

| | | |
|---|---|---|
| IEC-61508 | - | Safety Integrity Level |
| IEC-61131/ISA S- | | Logic |

| | | |
|---|---|---|
| IEC-801.4 | - | Electromagnetic compatibility for industrial process measurement & control equipment. |
| NFPA 70 | - | National Electrical code |
| IEC-61511 | - | Functional Safety-Safety Instrumented system for the Process industry sector. |

## 25.0 EPCM SCOPE OF WORK:

### 25.1 BRIEF SCOPE OF WORK FOR EPCM SERVICES FOR THE TWO PLANTS:

The CONSULTANT scope of work shall be Basic and Detail Engineering, conduct various safety studies like HAZOP, SIL, etc., Soil testing and topographical survey of project land site, Procurement management, Project Management, Site construction management, Preparation of RFP (including Specifications, QAPs, Procedures, etc. (for supply &services both), Technical and Price bid evaluation including other assistance (attending pre-bid meeting, preparing minutes, recommendation to Owner and also assisting in preparation of LOI / Work Order and Contract Agreement for Supply/Construction contractor/ EPC, etc. till award of job), documents approval, technical audit during manufacturing including but not limited to initial visit to the plant for kick off the production of casting / forging including machining works including the testing facilities and close out of orders after reconciliation and any other assistances as and when required by Owner, Construction Supervision, evaluation of offers and assistance the company in award of work.

**Engineering Package**

Consultant (EC) shall establish Basic Engineering Package (BEP) & subsequently the detail engineering package (DEP) documents for Modularized Processing Facility at NADUA and East Khagorijan having the following minimum processing facilities, civil, mechanical, Electrical and Instrumentation works as detailed in relevant sections of this document.

- HP/LP Inlet Manifold System
- Crude Separation system
- Crude Dehydration System
- Gas and Oil Metering system
- Flash Gas Compression System and
- Utilities like Fuel gas system, Hot Oil system, IA/UA Compression system, Nitrogen Generation system, Flare system, Drain system, Chemical Injection, Contaminated Rain Water Storage Facility, Power Generation, Fire/Foam system, Potable Water system, Effluent Treatment system.

**25.2 Preparation of the Request for Proposal Document (RFP):**

A detailed RFP document for all packages and contracts for the project in totality shall be prepared consisting of the following, but not limited to: Bid Evaluation Criteria, Technical specifications and Material Requisition, Technical Data Sheet of all items, ITB, Conditions of Contract, Engineering documents like various P&ID, GA, Filter Sizing of various sizes, Commercial Terms and Conditions, Schedule of Rates formats etc.

**25.3 Pre Bid Meeting:**

Attending Pre Bid Meeting at OWNER's designated premises, response to the pre bid queries, convey to the various bidders through OWNER is included in above scope of work.

Technical Bid Analysis (TBA) and Commercial Bid Analysis (CBA)

Response to the Technical Queries:

Responding to Technical and or commercial Queries raised by the various bidders during tender stage are included in above scope of work. Response of the queries shall be made in consultation with OWNER.

Evaluation & Recommendation:

Evaluation of the bids shall be carried out in two stages, i.e. Technical evaluation and Commercial Evaluation. Complete Evaluation in consultation with Owner is included in scope of work. Recommendations to the Owner for Techno-commercial qualified parties are also included in above scope of work. Technical and commercial support required for preparation of the work order / purchase order to recommend parties are also included in above scope of work.

**After Award of contract, the services of consultant shall include following minimum activities:**

1.1 Detailed Engineering
1.2 Review & Approval of Engineering Documents submitted by vendor.
1.3 Material Management
1.4 Construction supervision
1.5 Commissioning supervision
1.6 Visits to the Sites.

**Note:**

- Consultant shall note that the decision to adopt procurement strategy for various non-EPC (Separate packages), Mode of Execution would be taken up after award of LOA to EPCM. The Consultant after award shall start building multiple documents for the agreed mode of execution so as to be ready with the finally required documents.
- The consultant shall work in line with statutory guidelines in force time to time and shall design in compliance to OISD & OMR requirements and all other applicable Indian statutory requirements. Consultant shall ensure the Safety / Quality Compliance as per OMR standards, ASME,

OISD, and API over & above the EC standards. Consultant is required to assist OWNER in representing / liaison with any statutory authority for the purpose of the project including OISD. Assistance includes making presentation to Statutory Authorities including OISD.

**25.4** Consultant to note that there will be more than one tender with multiple vendor and multiple contracts to be executed for this project.

**25.5 <u>DETAIL SCOPE OF WORK</u>**:

**CONCEPTUAL DESIGN**

- Reviews of approvals obtained by OWNER from various external authorities and recommend any other approvals that are required to be obtained by owner time to time. Consultant shall advice the owner at right time for getting the requisite approval from the concerned authorities.
- Carry out technical feasibility study (if required) based on the terrain, geographical and soil conditions and report to Owner for suitable selection of plots for getting land for the Processing facilities located at NADUA and East Khagorijan.
- Consultant shall carry out simulation for project based sources of supply and consultant shall also verify that the throughput capacity of the plant meet the bid conditions as provided by owner. The cost optimization shall be done by the consultant if required by Owner while doing the simulations.
- Consultant shall prepare Conceptual P&ID's and flexibility study Drawings using latest version of AUTOCAD or any other latest software. For calculations and other requirements necessary software like STAD, Caesar, TGNET, ISOGEN any other based on the nature of work. Consultant can use software compatible to OISD requirements for Simulation purpose.
- The Consultant shall conduct Hazard and Operability (HAZOP) study for the all facilities considered in the Modularized Processing Facilities at NADUA and East Khagorijan. The format and methodology for HAZOP shall be agreed with the Owner at the start of the BEP. Engineering consultant shall complete the HAZOP study before issuing the RFP for tendering.
- All the changes suggested by the HAZOP Chairman shall be incorporated by the consultant without any additional cost to the Owner. Technical data and drawings shall be prepared by the Engineering Consultant according to the Prevailing rules and / or standards. The Engineering Consultant shall be responsible for technical correctness support for acquiring, processing the data and drawing which are required to highlight design, specification and drawings to the concerned authority.
- The Engineering Consultant shall follow all latest Norms / Standards / Codes as per prevailing and good engineering practice locally and

internationally. OISD/OMR regulations and Technical and safety standards shall be strictly followed while preparation of all technical specifications, designs, drawings, data sheets etc.

## 25.6 BASIC ENGINEERING:

Establish Basic Engineering Package (BEP) followed by a design basis document for the Processing facility at NADUA and East Khagorijan. Consultant will review & produce an initial data compilation to discuss with Owner, in order to harmonize the network integration, which is under development in phases, future scope of network. Establish all drawings, Specifications, data sheets, QAP's, P&ID's, Basic layout, Layout drawings, CP system (if required).

25.6.1 Define operational acceptance criteria before taking over the Systems from various contractors. Clear acceptance criteria shall be defined in the head called Final acceptance test or Operational acceptance test. Design life of station shall be 20 years with back up calculations for maximum and normal operating flows considering Owner's inputs for flow, pressure and temperature.
25.6.2 Selection of sizes and capacities of processing units shall be based on applicable standards/Codes and operating conditions with reference to statutory body's data.
25.6.3 Consultant shall provide design Basis including design ,Construction, Civil & Architectural, Mechanical, Piping, Alignments drawings, Cathodic Protection (if required), Electrical, Instrumentation works and review of site data, evaluating / specifying the requirements for Engineering for the same.
25.6.4 Instrumentation / Telecom system shall be designed by the Consultant. The system shall be on open architect basis, the communication protocol shall be open type and shall enable for any third party integration in future.

## 26.0 BASIC ENGINEERING PACKAGE:

### 26.1 EQUIPMENT:

26.1.1 Engineering Consultant shall make Datasheet/Specifications /Drawings/Scheme for the processing facility located at NADUA and East Khagorijan.
26.1.2 Engineering Consultant shall make Datasheet/ Specifications/Drawings/Scheme for various panels, instrumentation and electrical cables, and consider the suitability for different customers.
26.1.3 Engineering consultant shall make data sheet/specification/drawings for GEG/UPS, different panels, various cables, area lighting, single line diagram, earthing layout etc.
26.1.4 Prepare and/or develop P&ID's, Basic Layout, Duty Specifications of Equipment, Piping Classes.
26.1.5 Define the spares required for various equipment's and Instruments.
26.1.6 Define the safe distance between the Piping system & Control Room etc.

### 26.2 PLANT (GENERAL) :

26.2.1 Preparation of specifications, drawings, design of modularized design for the processing units for separators, dehydrators, associated piping/ equipment facilities.
26.2.2 Establish and prepare layout drawings, P&ID's, GA drawings.

26.2.3 Preparation of specifications, drawings for modularized skids for all process units, control rooms, office rooms etc. as per the stations requirement and safety requirement.
26.2.4 Preparation of drawings for piping supports wherever applicable.
26.2.5 Establish specifications, design and layout for firefighting system as applicable as per OISD regulation including fire and gas detection system, fire water network with hydrant and sprinkler system, Fire water tank &firefighting pumps, CO2 flooding / clean agent flooding for proposed plants.

### 26.3 CATHODIC PROTECTION SYSTEM (IF REQUIRED):

26.3.1 Develop design basis for cathodic protection systems during construction & Operation considering the life cycle approach. CP being the critical activity of pipeline system, the Consultant shall advice the Owner on the method of selecting and execution of C.P system for the project.
26.3.2 Design/ Technical specification, detailed engineering for various items like TR units, anode beds, cables, TLP points including Battery backup units.
26.3.3 Specifications for design, supply, installation, testing and commissioning of CP systems.
26.3.4 Specification for Corrosion monitoring system.

### 26.4 CIVIL/STRUCTURAL:

26.4.1 Overall plot plan to be prepared for modularized processing units.
26.4.2 Fire-fighting facilities with fire hydrant system for proposed compressor station.
26.4.3 Detailed technical specification for Plant / Non plant buildings, Modular skid Foundations, Roads, Drains, Compound wall etc.
26.4.4 Green belt development plan and environmental protection plan as per statutory requirements, SPCB, MOEF and Forest guidelines.

### 26.5 MECHANICAL:

26.5.1 Layout and design for modular processing units and associated piping/ equipment facilities along with piping, electrical, and instrumentation integration with the system.
26.5.2 Design of suction piping, sizing of suction piping
26.5.3 Data sheets for all processing units including applicable accessories/spares.
26.5.4 Detailed technical specifications for all mechanical related items.

### 26.6 ELECTRICAL:

26.6.1 Preparation of electrical design basis, preparation of single line diagram covering processing units, power, lighting, control and instrument power supply. Power saving system shall be introduced.
26.6.2 Overall circuit diagrams showing all equipment for power distribution and all essential connections.
26.6.3 Cable schedule for Power Control and Lighting cables
26.6.4 Cable layout diagram
26.6.5 Motor & Compressor data sheet

26.6.6 Layout of electrical equipment, routing of power cables, general lighting for installations, Buildings and Roads.
26.6.7 Earthing scheme covering number of earthing pits, earthing grid, identification of equipment for earthing, detailing of earthing connection.
26.6.8 Identification of process requiring interlocks, scheme for interlocks, and identification of equipment required for interlocks, etc.
26.6.9 Technical specification for circuit breakers, transformers, switch gear, UPS, panels, cables, Gas Driven Engine (GEG) Set, FA System, Clean Agent system, HC Detectors and all other electrical equipment.
26.6.10 Scheme and detailed technical specifications of HT/LT Power line at proposed site.

**26.7 COMMUNICATION/INSTRUMENTATION:**

26.7.1 Prepare Specification for OFC and Conduit. Number of fibres be discussed and finalized with Owner.
26.7.2 Prepare Specification for Electrical System including Hazardous Area Classification.
26.7.3 Prepare Specification for Instrumentation.
26.7.4 Piping & Instrumentation diagram and integration with other instrumentation systems
26.7.5 Cable schedule for Instrumentation cables.
26.7.6 Cable layout diagram.
26.7.7 Schematic drawing showing instruments.
26.7.8 List of all indicating instruments.
26.7.9 List of all locally/field controlled instruments & remote controlled instruments.
26.7.10 Classification and Technical specifications of all Instruments.
26.7.11 Detailed design of logic control loops, interlocks, PLC/other controls.
26.7.12 Detailed design of internal corrosion monitoring systems
26.7.13 Review of vendor design, comments & modifications and suggestions on other available alternatives.
26.7.14 Preparation of Circuit diagrams showing all cable connections.
26.7.15 Consultant shall do review/approval of vendor design /drawing/document and interface/integration of SCADA/Telecom system with export pipeline instrumentation system in line with OWNER's philosophy.
26.7.16 Consultant to consider integration of existing OIL Telecom/SCADA network with proposed system and also review and approve the vendor document for SCADA/ Telecom and to witness of Field Assessment Test (FAT) /Site Assessment Test (SAT) including integration test for both SCADA/Telecom wherever applicable.

**26.8 SPECIFICATIONS :**

26.8.1 Engineering Consultant to furnish all the specification and design basis as per specifications and codes.
26.8.2 Prepare pipe Specification and Coating Specification including BOM.
26.8.3 Prepare specifications for Fittings, Piping, and flanges.

26.8.4 Health, Safety and Environmental requirements shall be specified, addressing all relevant requirements for safe and reliable execution of the project in accordance with international standards in line with Equatorial principles.
26.8.5 Prepare all data required for OISD, and other statutory clearances as required from time to time.

## 26.9 OWNER'S ENGINEERS RESPONSIBILITY :

26.9.1 Consultant to make necessary provisions to setup an office at Assam for the execution of this project and to work closely with OWNER's team.
26.9.2 The Project Manager shall be sitting at the consultant office which is near to the OWNER head office with full supporting staff. Engineering Consultant shall establish the Assam office within 15 days from the date of award / LOA and maintain till handover / close out of the project.
26.9.3 Review and Approval of design, QAPs, all Drawings and Documentation on behalf of Owner. The review and approval process shall be completed within seven (7) working days from the receipt of documents. While reviewing the documents, Consultant shall ensure all potential comments shall be given in first instance.
26.9.4 Carry out regular technical audits at various vendors' premises to ensure that they are complying with the quality assurance requirements as stipulated in procurement documents of critical items like Compressor, separator filter and associated equipment, Valves, fitting, equipment, etc. Consultant's participation in the quality assurance program will focus on the vendor's compliance with applicable quality control measures. Consultant shall also ensure complete documentation of the vendor during, inspection and testing during fabrication and production, monitoring material handling and control procedures of the vendor and proper handling, storage and shipping of equipment after manufacture.
26.9.5 Co-ordination with contractor (s) on day to day basis for status submission and approval of engineering drawings and supplier drawings design or QAP etc.
26.9.6 Approval of Supplier Drawings / Designs.
26.9.7 Expediting and Inspection at vendor premises covered under contractors' scope of supply as and when required. Details scope of expediting and inspection work shall be as per detail given below under Expediting and inspection section.
26.9.8 Consultant should review procedure for transportation, logistics, storage during transit plan as submitted by various vendors for bought out items covered under scope of contractor.
26.9.9 Prepare pre-commissioning/commissioning procedure duly approved by Owner.
26.9.10 certify the readiness before commissioning and ensure that all necessary statutory clearance is in place before Crude & Gas-in.
26.9.11 Be responsible for commissioning of entire projects in totality and hand over to Owner. Owner will provide Gas & Oil for commissioning and consultant to certify process unit readiness for commissioning with all applicable deviations if any, ensure all pre commissioning checks are done as per applicable statutory

codes and standard engineering industry practice and all major/ critical punch points are closed before gas in. As-built drawing and document approval.
26.9.12 Client will provide standard Quality Assurance plan available with them which shall be reviewed by EC for finalization
26.9.13 Vendor QC:
Consultant shall prepare vendor qualification criteria based on PTR for all for supply of material for various disciplines.

## 27.0 PROJECT MANAGEMENT SERVICES :

27.1 Project Co-ordination Procedure shall be prepared by the Consultant.
27.2 Master Schedule shall be prepared within 7 days from the date of award / LOA for effective monitoring of the project; Consultant at regular interval shall review project progress with Contractor by way of review meeting and highlight all delays time to time in their progress report to owner including catch up plans to cover the delays.
27.3 Update project master schedule.
27.4 Establish cash flow forecast based on the master schedule and update base on the actual progress.
27.5 Establish a reporting system on week / fortnight basis with activity status wise S curves which will give as a minimum but not limited to:

- Project status report
- Progress on Engineering front
- Progress on Procurement
- Progress on Construction work
- Status of Quality reporting
- Status of pending activities along with action plan (Frequency of reporting to be weekly)
- Certify site reports, progress report and Invoice of package contactors /Construction contractor/Vendor

27.6 Establish final acceptance level, before commissioning.
27.7 Issue a final acceptance certificate for complete system. A complete Facility close out report shall be prepared by EC with all the highlights of Facility including time schedule, cost overrun, if any, audit report, Construction stage wise photographs, NCRs, Facility learning etc.
27.8 Review all contractual points before handing over, and shall establish a "Punch List".
27.9 Be responsible for commissioning of entire Facility, as a whole, and submission of commissioning report to Owner.
27.10 Be responsible for preparation & submission of operation procedure report to Owner.
27.11 Consultant shall be responsible for the total execution of work from engineering stage to final commissioning and shall not back out in providing any services related to the Facility.

27.12 Progress presentation along with executive summary, critical issues, action plan, look-ahead schedule to OWNER management (monthly). The format for presentation shall be agreed mutually.
27.13 Technical Assistance in Insurance claim.
27.14 Consultant shall be responsible for completion of the project in time without any cost overrun and maintain the same quality standards stated in the bid. Consultant shall drive the project and advise OWNER from time to time the necessary precautions to safeguard the project to avoid delay in completion and cost overrun.
27.15 Submit Project close out report including the learning's from the project with suggestion of remedial measures like corrective and preventive action from past projects lessons learnt.
27.16 Warranties and Guarantees:
Consultant shall obtain from the vendors, the best possible warranties and guarantees covering workmanship and materials for the benefit of Owner and will take all steps to ensure that such warranties and guarantees are enforced.
27.17 Expediting and Inspection:
Expediting reports will reflect the expediter's assessment of the order status and in the event of problem areas, the actions taken, suggested or required. Consultant shall be responsible for anticipating problems and taking corrective action. In the event of delivery slippage by a vendor, a report shall be issued detailing the basis for the slippage and advising the actions required for meeting project timelines. Vendor data shall be expedited. Detailed schedules for receipt of engineering information from the vendor should be established, based on the requisition requirements and in keeping with engineering schedule requirements. Delivery updates and other pertinent expediting information shall be provided for inclusion in a monthly Material Status Report. Any significant delivery slippage shall be highlighted and the remedial action noted allowing Consultant to evaluate potential scheduling problems. Inspection reports shall be issued to owner upon each shop visit. Consultant to assist owner to get insurance claim of any accident and also Consultant to extend their services for inspection of repairs or replaced material as and when required.
7.18 Quality Control:
Owner reserve the right to appoint independent Third Party Agency for quality control/quality surveillance of materials and construction activity.

## 28.0 REQUEST FOR PROPOSAL DOCUMENT:

28.1 The Engineering Consultant shall prepare all the data required for Invitation to Tender documentation (RFP) for selecting package vendors / construction contractor / vendor which shall include the minimum, following:

| **REQUEST FOR PROPOSAL – NADUA & EAST KHAGORIJAN** |
|---|
| **The RFP's for EPC Contractor Scope of work shall include but not limited to :** |
| MR - Separation & Stabilization |

| |
|---|
| Package |
| MR - Flash Gas Compression System(If Applicable) |
| MR - Gas Metering Skid |
| MR - Crude Metering Skid |
| MR - Fuel Gas System |
| MR - Effluent Treatment Package |
| MR - Captive Power Plant |
| MR - Emergency Diesel Generation System |
| MR - Flare System |
| MR - I/A Compression System |
| MR - Nitrogen Generation System |
| MR - Contaminated Rain Water System |
| MR - Hot Oil System |
| MR - Fire Fighting System |
| MR - Atmospheric Storage tank (2 x 800KL) |
| MR - Raw Water System |
| MR - Closed Drain System |
| MR - Chemical Injection System |
| MR - Fire and Gas Detection System |
| MR - Telecommunication System |
| MR - Control System(PAGA, SCADA, PLC etc.,) |
| |
| **The RFP's for Construction Contractor Scope of work shall include but not limited to :** |
| MR - Steel Work (Interconnection, Hook-Up installation etc.,) |
| MR - Civil Work |

28.2 Engineering consultant need to establish philosophy for all plant activities.
28.3 Establish Scope of work for each work envisaged for this project.
28.4 Establish design basis document including relevant codes, standards and norms for systematic related actions.
28.5 Establish all technical specifications, data sheets and technical drawings, plot plans, P&ID'S, PFD's, typical drawings, Electrical and Instrumentation drawings.
28.6 Establish all construction and Installation specifications, standards to be followed for various activities like Welding, commissioning, OFC, Electrical, Instrumentation, Civil, CP, Coating, SH&E Procedure, Operational procedure etc.
28.7 Preparation of procedures for As-Built documentation.
28.8 Preparation of Quality Assurance plan for the project
28.9 Establish General terms / Special terms and conditions, Forms and Formats for RFP document as per National / International standards.

28.10 A draft Commercial document for RFP shall be provided by Owner. Consultant shall review and modify the same for the project requirement after taking necessary inputs from client. Consultant may propose modification in the same so as to capture various tax benefits like Cenvat Credit, Project Import benefit etc.
28.11 The above information does not relieve the consultant from the obligation in completing the scope, which will form an Integral part of the RFP document and shall cover the total requirements.
28.12 The expenses related to floating of enquiry and inviting bids shall be incurred by Owner.

## 29.0 COST ESTIMATION:

29.1 Overall Cost estimate to be submitted to Owner after completion of Engineering and Scope of Tender/RFP.
29.2 Assumptions & basis for cost estimate, this cost estimate shall include the preparation of documentation to support the cost estimate. This shall include all factors of major cost-significance. The accuracy of cost estimate shall be within +/-10%.
29.3 Engineering consultant shall consider direct and indirect cost for various supply item, installation, testing, commissioning etc based on final BEP/RFP for different project for the purpose of estimation.

## 30.0 CONSTRUCTION SUPERVISION :

Minimum Manpower deployment schedule is specified in the tender SCC & ITB. This manpower deployment schedule is with details of different type/category of manpower proposed to be deployed on monthly basis to cover site supervision of station project activities from award of EPCM contract till close out of project. Consultant to propose CV of various personnel in line with qualification and experience criteria as specified elsewhere in this document and owner reserve the right to select consultant's personnel for deployment at site.
Typical scope of work of construction supervision shall be covering following:
30.1 Site Supervision shall be done during the construction / erection of project.

30.2 Supervise all site activities at each stage.
30.3 Approve all procedures, ITPs, Drawings and design related to construction activities.
30.4 Supervise the construction activities till commissioning of the project. **Certify work measurements, review IRN & IMRN release notes. Carry out TPI inspection as required**.
30.5 Plan, execute and communicate the construction progress to the Owner on a weekly basis. The team shall ensure timely completion & shall give action plan on weekly basis.
30.6 Be responsible to certify the equipment's, so as to ensure that it meets all the standards / codes and specified requirements of Owner.

30.7 Identify all critical milestones related to work/specialized site activities like welding qualification, hydro test, etc. for close surveillance, and inform Owner for compliance to lay down requirement accordingly.
30.8 Ensure that all necessary tests have been conducted and passed, and documented the same as a quality records.
30.9 Supervise the commissioning activities of proposed compressor system.

## 31.0 MATERIAL MANAGEMENT:

31.1 Review materials management plan including SOPs, formats prepared for Contractor and assist the Owner in approval of the same.
31.2 Receive equipment / materials from Contractors/suppliers and certify their invoices for payment.
31.3 Inspect the condition of goods received, review inspection release note and other quality document for acceptance/issuance of 'goods receipt vouchers'.
31.4 Maintain a register of suppliers covering all equipment and materials distinguishing between manufacturers / stockiest / supply houses.
31.5 Prepare and submit reports every 15 days indicating the stores on hand, goods in transit, goods issued to contractors and balance goods to be received as per respective purchase orders.
31.6 Consultant shall be responsible for entering the Goods Receipt, Goods Issue & other material management activities in SAP system/PMS software of Owner within stipulated time. Necessary infrastructure shall be provided by Owner/Contractor.
31.7 Maintaining the material inventory, consumption statement, Goods Issue Voucher/Goods Receipt Voucher etc.
31.8 Issue material for construction to Contractor and prepare 'goods issue vouchers' thereof.
31.9 Receive unused material returned by Contractor and prepare 'goods receipt vouchers' thereof.
31.10 Prepare reconciliation statements to enable Owner to check and take over the balance material in stores.
31.11 Separate material/equipment utilization statements (with value) for material/asset items to be submitted on quarterly basis and at the end of the project to facilitate Owner do proper capitalization of assets.
31.12 If some data/ details are required to be maintained outside SAP, Owner's approval would be required. This approval would be given based on suitable justification by consultant duly agreed by Owner. Hard copy of files corresponding to SAP document shall be maintained with suitable reference to SAP document no. Adherence to SAP & linkage to hard copies shall also be a basis for release of payment to consultant for the work carried out by them.

## 32.0 OWNERS DATA :

Owner will provide the following information only:

32.1 Inlet and outlet specification of gas, Crude Oil and Produced water

32.2 Pressure / temperature /quantity/composition and all other relevant information as available etc.

**Other Points:**

1. The Statutory approval's from DGMS authorities for the two plants project shall be taken by EPCM. However Owner shall provide necessary time to time advises and assistance to EPCM in getting such approvals.
2. Customs duty for project items and charges towards clearing and forwarding agencies shall be paid by contractors. However consultant shall provide necessary assistance for custom clearance and transportation of materials/equipment.
3. The expenses related to Floating of enquiry and inviting bids shall be incurred by Owner.
4. Consultant shall assist owner for any liaison with various state and central government agencies/Pollution control Board/Ministry of Environment & forestry/Petroleum and Natural Gas Regulatory Board/ Other statutory authorities.
7. For any travel under above points 1 and 6, the out of pocket expenses shall be borne by EPCM.

## 33.0 DOCUMENTATION

The following documents are to be submitted to Owner:

- Master Schedule
- Consultant shall submit progress report on weekly, fortnight and monthly basis during BEP, RFP preparation stage, construction, commissioning stages. The format of report shall be jointly finalized during kick off meeting.
- The Progress Report and Project Cost Summary shall also be submitted in line with OIL/MoPNG requirements.
- Draft BEP : 5 hard copies and one soft copy
- Final BEP : 5 hard copies+ two soft copy (each in CD-ROM and in flash drive)
- Draft RFP : 5 hard copies and one soft copy
- Final RFP : 5 hard copies+ two soft copy (each in CD-ROM and in flash drive)
- Close out report: 5 hard copies and one soft copy

**Documentation on BEP/Execution Methodology:**

- Consultant shall submit a detailed report documenting the basis of finalizing major specifications in the BEP. The report shall document the basis used for the final specification and shall include technical factors, commercial factors, cost benefit analysis etc. The report should also document as to why the alternatives were discarded using various

parameters. The draft report should be submitted before the BEP document and the final BEP should be prepared after acceptance of the said report by owner.

- Similarly before finalization of RFP for Supply/ Construction/ EPC [as the case maybe], Consultant shall submit a detailed report on proposed execution methodology for execution of project. The report should include analysis on the advantages and disadvantages of various methodologies visa-vis cost, time schedule, risk, vendor availability, contractor availability etc. The draft report should be submitted before the RFP document and the final RFP should be prepared after acceptance of the said report by owner.

**34.0 TIME PERIOD :**

**The total project duration will be 26 Months from date of issue of LOA to EPMC as detailed below:**
**But the contract duration with EPCM will be for 28 Months (26 + 2 months for project closure activities):**

- Completion of Basic Engineering Package (BEP) after award of LOA to EPCM – 2 months
- Award of Package Contractor – 4 months
- Skid Delivery by Package contractor – 10 months
- Award to Construction contractor – 3 months (Before 3 months of EPC completion)
- Civil, Construction, Installation, Hook-up by Construction Contactor – 9 months
- Supervision of commissioning and pre-commissioning – 2 months
- Supervision of PGTR – 1 months

**35.0 Minimum deliverables expected from EPCM for the two plants:**

| **BASIC ENGINEERING DELIVERABLE LIST – NADUA & EAST KHAGORIJAN** | |
|---|---|
| **PROCESS DELIVERABLES** | |
| **Reports** | |
| | Process Design Basis |
| | Operational Philosophy |
| | Process Control Narratives |
| | Flare &Blowdown Report |
| | Vent & Drain Philosophy |
| | Isolation Philosophy |
| **Calculations** | |
| | Equipment Sizing Calculation |
| | Line Sizing Calculation |
| | PSV Calculation |

| | |
|---|---|
| | Deluge Calculation |
| | NPSH Calculation |
| **Schedules/Lists** | |
| | Utility Consumption Schedule |
| | Process Description |
| | Cause and Effect Matrix |
| | Line List |
| | Process Datasheets |
| **Drawings** | |
| | PFDs |
| | UFD |
| | HMBT |
| | P&IDs |
| **BASIC ENGINEERING DELIVERABLE LIST – NADUA & EAST KHAGORIJAN** | |
| **PIPING DELIVERABLES** | |
| Equipment Layout | |
| Piping Design Basis | |
| Tie-in Register | |
| Piping BOM | |
| BASIC ENGINEERING DELIVERABLE LIST – NADUA & EAST KHAGORIJAN | |
| MECHANICAL DELIVERABLES | |
| Manual Valve Summary | |
| Piping Speciality List | |
| Vessel Clip Details | |
| Pipe Stress Analysis Report | |
| Data Sheet | |
| RFQs | |
| Mechanical Design Basis | |
| **BASIC ENGINEERING DELIVERABLE LIST – NADUA & EAST KHAGORIJAN** | |
| **INSTRUMENTATION DELIVERABLES** | |
| Instrument Data Sheets | |
| Instrument Index | |
| Instrument Cable Schedule | |
| Instrument Hardwired I/O Schedule | |
| Instrument Location Layout | |
| Instrument Process Hook-Up Detail | |
| Instrument Cable Tray Layout | |
| Junction Box Construction Diagram | |
| Junction Box Wiring Diagram | |
| Junction Box Mounting Details | |

| |
|---|
| Instrument Earthing Layout |
| Instrument Cable block diagram |
| Instrument Cable tray fill report |
| Instrument MTO |
| **BASIC ENGINEERING DELIVERABLE LIST – NADUA & EAST KHAGORIJAN** |
| **ELECTRICAL DELIVERABLES** |
| Electrical Data Sheet |
| Electrical Cable Block Diagram |
| Electrical Cable Tray Layout |
| Electrical Lighting Loop diagram |
| Electrical Load List |
| Electrical MTO |
| Electrical Single Line Diagram |
| **BASIC ENGINEERING DELIVERABLE LIST – NADUA & EAST KHAGORIJAN** |
| **STRUCTURAL DELIVERABLES** |
| Main Frame Layout and Details |
| Handrail Layout & Details |
| Secondary Frame Layout and Details |
| Structural Elevation views |
| Davit Arm Details |
| Staircase Details |
| Lifting Arrangement Details |
| Equipment Support and Details |
| Grating Layout & Details |
| Pipe Support Details |
| Pipe Support location Plan |
| Deck Plate Layout & Details |
| Monorail Details |
| Ladder Details |
| Structural Analysis Report |
| Weight and COG Report |
| Support Reaction report |
| Structural MTO |
| Miscellaneous design report |

***End of part3 – Section 2***

ऑयल इंडिया लिमिटेड
Oil India Limited

## Part-3, Section-III

**Schedule of Rates & Schedule of Payment (EPCM Services for two plants)**

1. **Schedule of Rates - Price Bid Format :**

| S. No | Nature of Service | UOM | Quantity | Rate/Unit (INR) (Crores) | Total Price of Services INR (Crores) |
|---|---|---|---|---|---|
| 10 | Basic Engineering Package | LS | 2 | | A |
| 20 | RPF Preparation | LS | 2 | | B |
| 30 | Package Vendor & Construction Contractor Award (Pre-Bid Meeting, Bid Evaluation, Order & Contract Preparation) | LS | 2 | | C |
| 40 | Detail Engineering | LS | 2 | | D |
| 50 | Project Management Services | LS | 2 | | E |
| 60 | Construction Supervision & Management | Man-Month | 208 | | F |
| 70 | Procurement & Material Management | Man-Month | 216 | | G |
| 80 | Inspection and Expediting Services | LS | 2 | | H |
| 90 | Pre-Commissioning & Commissioning Supervision | Man-Month | 16 | | I |
| 100 | PGTR of the Plants | Man-Month | 8 | | J |
| | **Summary of Total Price (T) – A+B+C+D+E+F+G+H+I+J without Service Tax but inclusive of all other taxes as applicable.** | | | | |

**Notes on price bid format:**

a) The responsibility of preparing the final project schedule and get it approved by OIL will be with the EPCM based on his assessment of scope of work as per tender and to ensure complete project completion within 26 months from the date of LOA to EPCM.

b) **For item no.60:** (Minimum 8 Persons for 12 months for 2 Plants for site construction supervision and management) + (4 persons for 02 months for 2 Plants for Contract Closure Activities like Delay analysis, submission of project report, certification of final bills etc.) – The above construction period (of 12 months) has been indicated as per project schedule prepared from our end for ensuring project completion by 26 months from date of LOA to EPCM.

c) **For item no.70**: (Minimum 6 Persons for 18 month for 2 Plants) – The above indicated period of (18 months) has been indicated as per project schedule prepared from our end for ensuring project completion by 26 months from date of LOA to EPCM.

d) **For Item no.90:** (Minimum 4 Persons for 2 month for 2 Plants) – The above indicated period of (02 months) has been indicated as per project schedule prepared from our end for ensuring project completion by 26 months from date of LOA to EPCM.

e) **For Item no.100**: (4 Persons for 1 month for 2 Plants) - The above indicated period of (01 months) has been indicated as per project schedule prepared from our end for ensuring project completion by 26 months from date of LOA to EPCM.

**f) Please note that in all of above the minimum number of persons required for each activity has been indicated by us based on tender scope of work and tight timeline envisaged for project completion. However, if at any point of time to ensure timely completion of various project phases, OIL based on discussion with EPCM, desires that additional manpower are required to be deployed by EPCM, then the same will have to be agreed by EPCM within the same quoted cost under various SOR/applicable line items.**

## NOTES TO SOR:

1. The item wise prices of the bid should be in the following proportions:
   i - Total Charge for item no 10: 5% of the total contract cost "T''
   ii. Total Charge for item no 20: 7.5% of the total contract cost "T''
   Iii - Total Charge for item no 30: 7.5% of the total contract cost "T''
   IV - Total Charge for item no 40: 20% of the total contract cost "T''
   v - Total Charge for item no 50: 15% of the total contract cost "T''
   vi. Total Charge for item no 60: 20 % of the total contract cost "T''
   vii. Total Charge for item no 70: 15% of the total contract cost "T''
   Viii - Total Charge for item no 80: 5% of the total contract cost "T''
   Xi - Total Charge for item no 90: 3% of the total contract cost "T''
   x - Total Charge for item no 100: 2% of the total contract cost "T''

2. In the event the Bidder quotes a higher amount against any of the item, release of payment shall be limited to the percentages as mentioned vide Note 1 above. Balance of payment shall be released at the end of the Contract.
3. Bidders are to quote their item prices inclusive of all taxes and duties **but excluding service tax which will be payable at actual extra by OIL**.
4. Charges for Construction Supervision/Management shall be considering the indicative quantity for construction supervision man-months for entire construction period. However Consultant shall be paid based on deployment of manpower as per actuals (if less than 4 persons per plant is deployed for a particular month). However, if at any point of time more than 4 persons are required at site to catch/make up the delay in site construction activities or to expedite project progress to meet the timeline, consultant will deploy additional resources as required but the payment will be made as per rate quoted for 4 persons/month/plant only. The qualification and experience of the site personnel must meet the requirements as specified in the tender.
5. Material & Procurement Management personnel shall be deployed by EPCM based on actual requirement of manpower in consultation with the owner as per the project progress plan requirements. The indicated minimum three persons/month/plant will

have to be deputed by EPCM after submission of BEP package to manage the entire procurement of packages, selection of site construction contractors and complete materials management after placement of orders/contracts on multiple vendors/contractors including all the activities related to handling/receipt/ storage/inspection/testing of all procured materials at site.

6. The inspection and expediting charges will include EPCM visit to various package vendor houses in India to expedite delivery, witness FAT/SAT/Stage inspections, conduct TPI inspection as required for supply of material based on QAP/ITP plan and also quality inspections of site construction works, lab tests etc. EPMC take the services of OIL approved TPI for the same as and when required but the cost of the same will be on EPCM account.
7. The contract price shall be inclusive of man-day charges, fares, Lodging/Boarding and out of pocket expenses for consultant visit within India for entire scope of work.
8. All the above quoted prices shall be valid till the handover of the project to Owner and final project closure.
9. The 14 months period for service line item 60 will start from the date of mobilization to site by the first construction contractor for starting the site construction activities in the plants. The same will also be governed by the project schedule submitted by EPCM & approved by OIL after award of LOA to EPCM for ensuring total project completion within 26 months from the date of LOA to EPCM. In the event of delay in completion of the project beyond the period of 14 months (As mentioned in Service line item 60 above) due to reasons not attributable to the EPCM, and OIL desires to continue availing the services of the EPCM, OIL shall extend the validity of the Contract and it shall be binding on the EPCM to offer such services up to further 12 months on the quoted rates. However, all retention amounts as per Service line item 60 of Schedule of Rates except the Performance security (PBG) shall be paid back to EPCM after completion of 14 months from the date of start of construction supervision at site by EPCM. The payment for the period of further 12 months shall be guided by the Schedule of Payments.
10. If the project is further delayed beyond 26 months (original 14 months + further 12 months) and OIL desires to continue availing the services of the EPCM, the rate against service line item 60 shall be then be considered for one time escalation as per increase in RBI index reference CPI as given by formula as below, will be allowed only on man-month charges for construction supervision. This escalated price shall be valid for another 12 months.

**(RBI CPI Index at the end of 26 months from the date of Commencement of construction – RBI CPI Index for the month of issuance of specific notice) - A**

**Escalation (in %) = A X 100 / (RBI CPI Index for the month of issuance of specific notice)**

11. Under any circumstance OIL reserves the right to terminate the Contract as per termination clauses of the Tender. Extension of the Contract beyond 28 months from the date of LOA to EPCM is under the sole discretion of OIL.
12. Refer to "Scope of Work / Terms of Reference" for detailed scope of work.
13. All prices are inclusive of all taxes, duties, out of pocket expenses like travelling, lodging boarding, local conveyance etc. Proper CENVATABLE invoices shall be raised by EPCM.
14. All invoices shall be raised in INR.
15. The above quoted price shall include cost of consultant's personnel for attending meetings/OIL Board meetings/Apex level meetings at OIL corporate office in Noida and other sites related with the project for the scope of work till completion of the project.
16. Consultant's Engineer shall be deployed for production commencement/SAT/FAT for all critical items at vendor premises and also one Technical Audit during production.
17. Each and every item as break up shall be filled otherwise the offered price shall not be considered.
18. Project Management Services has to be carried out from Duliajan in Assam. Relevant discipline engineers have to attend the interface / engineering review meetings and across the table approval for each discipline. Project Management office in Duliajan must be equipped with adequate infrastructure like fax, photocopier, telephone, printers, video conference facilities along with the following personnel shall be mobilized;
    - Project Manager
    - Quality Manager
    - Planning Manager
    - Engineering Coordinator
    - Procurement Manager
    - HSE Manager

    The cost associated for the above services shall also be covered under Project Management Services by EPCM.
19. For Construction supervision, the payment shall be made as per actual deployment at site and based on the certification from the Owner.

# Schedule of Payment : Payment Milestones

**a. Basic Engineering Package(BEP) – SOR Item no.10**

| S. No. | Description | % Payment |
|---|---|---|
| 1 | BEP Contract value as down payment after signing of Contract agreement, submission of list of deliverables discipline wise and project schedule | 10 |
| 2 | On submission of draft BEP document | 30 |
| 3 | On submission of final BEP document | 30 |
| 4 | Within 30 days of Approval by Owner of BEP document | 22.5 |
| 5 | On contract closure | 7.5 |

As the project philosophy will call for multiple BEP to be submitted. The break-up of payment milestone further under (sl. no.1 to 5) then shall be as follows:

- Soil testing and topographical survey: 5%
- QRA, Escape, Evacuation, Rescue analysis and all other studies except HAZOP & SIL as detailed in "Terms of Reference and Scope of Works: 5%
- Separation & Stabilization System: 20%
- Dehydration, NAG & ETP Package: 20%
- Flash Gas Compression System, Metering and Trunk line KOD & Other systems/all utilities: 20%
- CPP, Electrical & Complete Instrumentation: 10%
- Civil, Piping & Mechanical: 10%
- Presentation of Computer animated AEC Walkthrough to OIL: 5%
- Formulation of Health, Safety and Environment Policy; as detailed in "Terms of Reference and Scope of Works: 5%

**b. Request For Proposal(RFP) - SOR Item no.20**

| S. No. | Description | % Payment |
|---|---|---|
| 1 | Of RFP Contract value as down payment after signing of Contract agreement and submission of list of deliverables discipline wise | 10 |
| 2 | On submission of draft RFP document for Supply/Construction/Package vendor | 10 |
| 3 | On submission of final RFP document for Supply/Construction/ Package vendor | 30 |
| 4 | On recommendation for award of work to Supply/Construction/ Package vendor | 30 |
| 5 | On verification and compilation of tender document including addendums if any after award of job to Package vendor /construction contractor | 10 |
| 6 | On contract closure & award of O&M contract | 10 |

As the project philosophy will call for multiple BEP to be submitted. The break-up of payment milestone further under (sl. no.1 to 6) then shall be as follows:

- Separation & Stabilization System: 20%
- Dehydration, NAG & ETP Package: 15%
- Flash Gas Compression System, Metering and Trunk line KOD & Other systems/all utilities: 15%
- CPP, Electrical & Complete Instrumentation & all related MTO: 10%
- Piping, Pumps, & Mechanical, Valve & Piping MTO: 15%
- Site Civil Construction and Tankages, Mechanical hook-up/piping tenders: 20%
- Tender Package for five years O&M for both the plant: 5%

**c. Package Vendor & Construction Contractor Award (Pre-Bid Meeting, Bid Evaluation, Order & Contract Preparation) - SOR Item no.30**

| S. No. | Description | % Payment |
|---|---|---|
| 1 | Pre-bid meetings, Bid Evaluation, PBO recommendation | 20 |
| 2 | Preparation of Purchase orders and Contracts for Package vendors & Construction Contractors | 20 |
| 3 | Placement of LOA/Orders for Package vendors & Construction Contractors | 20 |
| 3 | Package vendor Manufacturing & Testing | 15 |

| | | |
|---|---|---|
| 4 | Delivery of items/Packages to site | 10 |
| 5 | Placement of order on O&M contractor | 5 |
| 6 | On contract closure & award of O&M contract | 10 |

As the project philosophy will call for multiple BEP to be submitted. The break-up of payment milestone further under (sl. no.1 to 6) then shall be as follows:

- Separation & Stabilization System: 20%
- Dehydration, NAG & ETP Package: 15%
- Flash Gas Compression System, Metering and Trunk line KOD & Other systems/all utilities: 15%
- CPP, Electrical & Complete Instrumentation & all related MTO: 10%
- Piping, Pumps, & Mechanical, Valve & Piping MTO: 15%
- Site Civil Construction and Tankages, Mechanical hook-up/piping tenders: 20%
- Tender Package for five years O&M for both the plant: 5%

**d. Detail Engineering – SOR Item no. 40**

| S. No. | Description | % Payment |
|---|---|---|
| 1 | Of Detail Engineering Contract value as down payment after signing of Contract agreement and submission of list of deliverables discipline wise | 10 |
| 2 | On submission of IFA documents | 25 |
| 3 | On Completion of 60% Model review | 10 |
| 4 | On Completion of 90% Model review | 20 |
| 5 | On submission of IFC/AFC documents | 30 |
| 6 | On submission of AS-BUILT documents | 05 |

**e. Project Management Service – SOR Item no.50**

**75% on progressive percentage basis**. The progressive percentage will be linked to master schedule finalized between consultant and owner. The milestone will start after award of all supply and construction contract. The further breakup of this 75% is as below:

- 15% payment on completion of 30% Project PHYSICAL progress
- 15% payment on completion of 60% Project PHYSICAL progress
- 15% payment on completion of 90% Project PHYSICAL progress
- 15% payment on completion of Mechanical Completion
- 15% payment on completion of PGTR & Successful Commissioning

**Remaining 25% shall be released on completion of Project Closeout:**

- 15% on award of O&M contract
- 10% on contract closure

For the last milestone of 10% of the Contract Price for the above items, if the Contract closure extends beyond 6 months after commissioning of entire project and contract closure delay is for reasons not attributable to consultant, the milestone amount shall be released against the submission of additional Bank Guarantee for the same amount. The additional bank guarantee shall be valid for balance period of the defect liability period.

**f. Construction Supervision/Management – SOR Item no. 60**

- Payment shall be made every month on **80% of actual**. Certified invoice with man-day details and project plan v/s actual status for the month as per approved project schedule to be submitted. If the project progress is behind/lagging by more than 20% of the plan for that particular month then only **60% payment** will be released. The deducted **20% payment w**ill be released with the subsequent next month invoice, only if the lag is compensated in the invoiced month project progress or otherwise the same will be paid only after mechanical completion and before start of plant PGTR.
- The remaining 20% shall be paid after successful commissioning of the Project.

**g. Material/Procurement Management – SOR Item no.70**

- Payment shall be made every month on **50% of actual**.
- **30% payment** will be made depending upon progress as per approved procurement package order deliveries schedule prepared for the project. The 30% amount will be equally distributed against the number of package orders that will be fixed for the project and upon delivery of each package to site the proportionate amount will be released.
- The **remaining 20%** shall be paid after successful commissioning of the Project.

**h. Inspection and Expediting Services – SOR Item no.80**

- 70% payment will be released on prorate basis against delivery of packages at site as per the project procurement package list. The list to be finalized after completion of RFP for all packages by EPCM and get the same approved by OIL.
- Rest 20% will be released on prorate basis against various inspections done at site for construction works as per approved ITP for the project.
- Rest 10% will be released after completion of plant PGTR.

g. **Commissioning & Pre-Commissioning & PGTR – SOR Item no. 90 & 100**

- 100% will be released after plant mechanical completion and commissioning for item no.90
- 100% will be released after completion of plant PGTR for item no.100

## Part-3, Section-IV

## SPECIAL CONDITIONS OF CONTRACT

### 1.0.0 GENERAL

a) Special Conditions of Contract (SCC) shall be read in conjunction with the Conditions of Contract (GCC), Specifications/scope of work, drawings and other documents forming part of this contract wherever the context so requires.
b) Notwithstanding the sub-division of the documents into these separate parts and volumes, every part of each shall be deemed to be supplementary to and complementary of every other part and shall be read with and into the contract in so far as it may be practicable to do so.
c) Where any provision of the Condition of Contract is repugnant to or at variance with any provision of the SCC, then the provision of the SCC shall be deemed to override the provisions of the Condition of Contract and shall, to the extent of such repugnance or variations, prevail.
d) No oral representation of any officer, agent, or employee of either the Vendor or Owner shall affect, modify, nullify or alter any right or obligation of the Vendor or Owner in terms of the contract unless made in writing and signed by the authorised representative of Owner and Vendor as an Agreed Variation.
e) Wherever, it is mentioned in the specifications that the Contractor shall perform certain works or provide certain facilities, it is understood that the Contractor shall do so at his own cost, being deemed to be part of the relevant item in the Schedule of Rates (SOR) whether expressly stated or not.
f) The materials, design and workmanship shall satisfy the relevant Indian & International Standards, the specifications contained herein and codes referred to. Where the specifications stipulate requirements in addition to these contained in the standard codes and specifications, these additional requirements shall also be satisfied.
g) In so far as the contract does not deal with or provide by expression or implication for any aspect or specification with respect to the product(s) or any of them or with respect to any other matter or thing required to be furnished, done or supplied relative thereto or for the delivery there of according to the contract the internationally accepted relevant specification, standard of workmanship and/or codes or practices, as the case may be, shall apply. In the event of any doubt or ambiguity relative thereto, the Consultant shall seek the clarification of the Owner.

### 2.0.0 SCOPE OF WORK

The scope or work of the Consultant is described in detail in separate document "SCOPE OF WORK & TERMS OF REFERENCE" of this tender document.
The brief description of scope of work is as under:
a) Basic & Detail engineering, project management including preparation of estimate.

b) Preparation of RFP (including Specifications, QAPs, Procedures, etc. (for supply & Services both).
c) Technical and Price bid evaluation including other assistance (attending pre-bid meeting, preparing minutes, recommendation to Owner and also assisting in preparation of LOI / Work Order and Contract Agreement for Supply /Construction contractor/ EPC, etc. till award of job).
d) Documents approval, technical audit during manufacturing including but not limited to initial visit to the plant for kick off the production of casting / forging including machining works including the testing facilities and close out of orders after reconciliation.
e) Evaluation of offers and assistance the company in award of work.
f) Material & Procurement management.
g) Inspection and Expediting Services
h) Construction Supervision and Management
i) Pre-commissioning and Commissioning activities
j) PGTR

## 3.0.0 DUTIES AND OBLIGATIONS OF THE CONSULTANT

a) Consultant shall provide the services agreed-upon in this contract and carry out its obligations with all due-diligence, efficiency and economy, in accordance with industry-accepted professional practices and standards. The Consultant shall observe sound management practices. The Consultant shall always act as a trustworthy adviser to the Owner, and shall, at all times, support and safeguard the Owner's legitimate interests in any dealings with subcontractors, local officials, community organizations or other Third Parties.
b) The remuneration the Consultant receives from the Owner shall constitute its only remuneration in connection with the contract. The Consultant shall not accept, for its own benefit or for that of its subcontractors, any trade commission, discount or similar direct or indirect payment or other consideration in connection with the goods and services provided under this contract or the discharge of its obligations thereof. The Consultant shall ensure that its personnel and that of its subcontractors or agents similarly not receive such additional remuneration.
c) The Consultant shall not have the benefit, whether directly or indirectly, of any royalty on or of any gratuity or commission from the use of patented or protected articles or processes used on or for the purposes of the contract unless it is mutually agreed in writing with the Owner that such a benefit is authorized.
d) The Consultant shall provide all goods and expert technical advice, skills and services, which are required for the work under this tender for which it is engaged. Where specialist technical advice, assistance, goods or services are required beyond that envisioned under the tender, the Consultant shall notify the Owner accordingly prior to bid submission. If accepted by prior written agreement of the Owner, the Consultant shall arrange for the provision of such additional goods and services. The above conditions notwithstanding, Consultant shall retain

full and unencumbered responsibility for the provision of all goods and services, which are required under this contract.

e) The Consultant shall, for each part of the services, define the support and/or participation that is required from the Owner or its project Office.

f) Additional equipment and machinery required to carry out the tasks required under the contract shall be provided by the Consultant.

g) At completion of the services, the Consultant shall submit to the Owner all original documents, working drawings, calculations and computer data that have been produced during contract implementation. This information and data shall be properly organized, filed and bound. The copyright of all documentation prepared by the Consultant in connection with this contract will remain the property of the Owner. The Consultant may make copies of such documents but shall not use the documents or the contents thereof for any purpose unrelated to the present contract without the prior written approval of the Owner.

h) The Consultant shall rent, furnish, staff and equip with communication facilities, office space (the Consultant's Office) in order to facilitate communication and other liaison activities between the Consultant, the Owner and other agencies associated with matters related to the project. All costs associated with the Consultant's Office shall be borne by the Consultant.

i) In order to collect the information/data over and above provided by the owner under the Contract, the Consultant may contact other agencies and government bodies associated with matters related to the project. All costs associated to such activities shall be borne by the Consultant including the cost of any information/data sourced for performing the scope of work.

## 4.0 PROJECT MANAGEMENT ORGANISATION

a) CONSULTANT to plan, initiate, guide, coordinate, supervise and control the entire Project implementation activities through a dedicated task force consisting of specialists and experts.

b) The CONSULTANT will act as an extension of Owner, always keeping in view Owner's interests and advising/guiding Owner on all important matters.

c) All coordination and communications for the Project will be carried out under the overall guidance and control of CONSULTANT's Project in-charge. Coordination and communication procedures will be developed by CONSULTANT soon after its appointment, in consultation with Owner.

d) The CONSULTANT shall not be allowed to bid for any Contracts including Supply Contracts for the Project. The CONSULTANT shall not undertake any activity, which is to be performed directly/indirectly by the Contractors/Suppliers and is the direct/ indirect responsibility of the Contractors/ Suppliers.

## 5.0 OBLIGATIONS OF THE OWNER:

a) The Owner shall furnish, without charge and within a reasonable time, all pertinent data and information available to it and shall give such assistance as possible to the Consultant for the carrying out of the Consultant's duties under this contract. The Owner shall give its decision on all designs, sketches, drawings, reports, recommendations and other matters properly referred to it for review and judgment by the Consultant so as not to delay or disrupt the provision by the Consultant of the goods and services required under this contract.
b) The information provided by the Owner including the Owner's representative(s) in connection with this work is being provided in good faith. Consultant shall exercise its knowledge and competence in scrutinising and evaluating such information and shall proceed with the use of such information only after satisfying itself of its sufficiency for use.
c) The Owner shall facilitate the timely granting to the Consultant or any of their personnel and, where agreed, their dependants, of:

- Necessary licenses, permits and customs clearances for entry and exit;
- Access to all sites and locations involved in carrying out the services;
- Other rights and privileges allowed under the contract and other documentation and papers related to the Consultant's presence in India for the work under the contract

d) The Owner's Office at Duliajan, Assam shall:

- Interact with the Consultant through various modes of communication viz. email, telecom etc. in relation to execution of the project at both the locations.
- Monitor and supervise the activities of the Consultant;
- Process the invoices and release of payment as per contract;
- Serve as liaison between the Owner, the Consultant and various other agencies that may be associated with the project. The Consultant shall, however, be fully responsible for collecting data and other relevant information from the Owner and other agencies. Owner's office shall accept the requisition by the Consultant for furnishing data and other relevant information from the Owner.

## 6.0 PERSONNEL:

a) The Consultant shall appoint a Project Manager to be in charge of the work under the Contract on behalf of the Consultant and be responsible for liaison between the Consultant and the Owner.
b) Should it become necessary to replace any Consultant personnel, the Consultant shall forthwith propose candidates to the Owner with equivalent or better qualifications and experience and, following the Owner's concurrence, arrange for such replacement in as expeditious manner as possible.
c) All such requests for whatever reason, must be presented in writing with the particular circumstances indicated. The replacement of expert/ specialist accepted in the contract will be considered in special circumstances only.

## 7.0 TIME OF COMPLETION

a) Scope of the work has been considered in totality as detailed in document "SCOPE OF WORK & TERMS OF REFERENCE" of this tender. Time of completion for total scope of work shall be 28 (Twenty eight) months from the date of LOA to EPCM. EPCM contract will be valid till completion of 28 months from the date of LOA to EPCM and the associated defect liability period.

b) Upon issuance of specific notice, the Consultant shall be called for a kick off meeting at Owner's Office at Duliajan, Assam, India, to discuss on various aspects of the scope of work. The Consultant will furnish detailed time schedule for completion of work which shall be finalized mutually between the Consultant and Owner.

## 8.0. SCHEDULE OF RATES:

a) All the items of work mentioned in the schedule of rates and covered by the Contract shall be carried out as per the Scope of work, drawings, specifications and direction of Engineer-in-Charge and shall include all labour, materials, tools, tackles, etc. required to complete the job.

b) The rates stated in the Schedule of Rates shall not be subject to escalation or increase on any account whatsoever.

c) The Price quoted by the bidder shall include charges towards relevant sections of SOR for the consultancy services covered under this contract.

d) The time period for the total work till completion of PGTR shall be 26 months (Twenty Six Months only) from the date of LOA to EPCM. However the contract with EPCM will remain valid till 28 months from date of LOA to EPCM and also till expiry of the associated defect liability period.

## 9.0 Manpower for EPCM:

The indicative list of minimum manpower (domain/discipline wise) for managing various major activities as per the scope of work and terms of reference of the tender and to complete the project in totality at both the locations within the timeline of 26 months from the date of LOA to EPCM is as below. Bidder has to confirm in writing in his bid that he will arrange to provide the listed minimum manpower as per the deployment pattern indicated below to manage various project works:

| **Design/ Engineering** | **Mechanical** | **Process** | **Civil** | **Electrical** | **Instrumentation** | **Rotating Equipment** | **Commercial** | **Total** |
|---|---|---|---|---|---|---|---|---|
| | 01 | 01 | 01 | 01 | 01 | 01 | | **06** |
| **Request for Proposal (RFP)** | Mechanical | Process | Civil | Electrical | Instrumentation | Rotating Equipment | Commercial | |
| | 01 | 01 | 01 | 01 | 01 | 01 | 01 | **07** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Project Management** | Project Manager | IT | HSE | Engineering & Planning | Quality Assurance | Procurement | | |
| | 01 | 01 | 01 | 04 | 01 | 02 | | **10** |
| **Construction Supervision** | Mechanical | Civil | Electrical | Instrumentation | Site-In-Charge | Safety | | |
| | 01 | 01 | 01 | 01 | 01 | 01 | | **06 + 01 as RCM/ Plant** |
| **Material Management** | Engineer | In-Charge | | | | | Commercial | |
| | 01 | 01 | | | | | 01 | **03** |

**EPCM will have to ensure that the above minimum manpower is deputed by consultant for effectively completing the tender scope of work within the timeline of 26 months from the date of LOA to EPCM.**

**10.0 Other Special Conditions and notes to bidder:**

a) If for reason solely attributable to Owner, the contract for construction of OCS at Nadua and GGS at East Khagorijan is cancelled, the Consultant shall be paid proportionately for the cancelled Contract based on the activity/activities which have been completed till the date of cancellation.

b) The contract price set forth herein shall be inclusive of:

- All cost, risk and expense, taxes including income tax on Rupee components and foreign currency components, overhead, profit and/or total fee to the satisfactory performance and completion of the work till completion of defect liability period.
- All costs related to management, supervision, design, engineering, subcontracts attendance at all meetings in India with Owner (whether at Owner's premises; Owner's nominated location or Consultant's premises and any other location applicable prior to and/ or during execution phase of the project), inspection, testing and quality assurance/ quality control of the work, as more particularly described in the Scope of Work, or elsewhere in the Contract.
- The cost of all Consultant's personnel, supervision, management (including but not limited to wages, benefits, payroll, taxes, travel and accommodation expenses and other costs thereto as are paid to employees), all office equipment's, rental of third party office equipment, communication charges, outside Owner's Project Site (including those incurred by Owner while in Consultant's offices), all administrative costs of Consultant's operation (including home office, site office and any other office), all reproduction and graphic costs of whatever kind, postage and courier expenses).
- The price shall also include the charges with respect to the services to be rendered by Consultant in the completion of the Project as set out in the various Clauses of the "Scope of Work".

- The cost of all travel, accommodation and communication expenses within India.
- The cost of all guarantees, indemnities to the Owner and insurance premium required in terms of the contract or under any law, rule or regulation or otherwise Consultant deems fit to take out and the cost of all risks whatsoever (foreseen and unforeseen) including, but not limited to the risk to delay or reduction or increase in the Scope of Work and/ or cancellation of contract and/or accidents, strikes, civil commotion, labour trouble, third party breach, fire, lightening, inclement weather, storm, tempest, flood, earth quake and other acts of God, restriction of dislocation of road/ rail and other transport for access, suspension of work and sabotage.
- The prices quoted as per the tender shall be firm for the entire period till completion of Consultant's services in all respects.
- All supervision charges, establishment overheads, finance charges and other cost and expenses of Consultant.
- Each and every item as break up sought in SOR shall be filled otherwise the offered price shall not be considered.

## 11.0 CONFIDENTIALITY OF INFORMATION AND DATA

All the information obtained by the consultant/expert while rendering the consultancy work and all the information/data etc. provided by Oil India Limited to the consultant/expert shall be treated as confidential and shall not be divulged by the consultant/expert or its personnel to any-one other than the Company's authorised personnel. This obligation of consultant/expert shall be in force even in case of termination of the contract. For publishing any scientific/technical papers in scientific journals etc. based on the findings/results/experience gained while rendering the consultancy work for Oil India Limited, the consultant/expert and the personnel engaged by them must take prior approval from the Company's authorised personnel in this regard.

***End of part 3-Section 4***

**PART-4**

**PROFORMA - I**

## STATEMENT OF NON-COMPLIANCE

**(Only exceptions/deviations to be rendered)**

1.0 The Bidder shall furnish detailed statement of **exceptions/deviations,** if any, to the tender stipulations, terms and conditions in respect of each Section of Bid Document in the following format:

| Section No. | Clause No. (Page No.) | Non-Compliance | Remarks |
|---|---|---|---|
| | | | |

2.0 In addition to the above the Bidder shall furnish detailed information pertaining to construction, operational requirements, velocity-pattern, added technical features, if any and limitations etc. of the Inspection Tool proposed to be deployed.

**Authorised Person's Signature:** _____

**Name:** _____
**Designation:**_____

**Seal of the Bidder:**

**NOTE**: OIL INDIA LIMITED expects the bidders to fully accept the terms and conditions of the bid document. However, should the bidders still envisage some exceptions/deviations to the terms and conditions of the bid document, the same should be indicated as per above format and submit along with their bids. If the "**Statement of Compliance**" in the above Proforma is left blank (or not submitted along with the technical bid), then it would be construed that the bidder has not taken any exception/deviation to the tender requirements.

**PROFORMA - II A**

**BID FORM**

To,
DGM (Projects-C&P)
M/s Oil India Limited,
P.O. Duliajan, Assam, India

Sub: Tender No. : _____

Gentlemen,

Having examined the General and Special Conditions of Contract and the Statement of Work & Terms of Reference including all attachments thereto, the receipt of which is hereby duly acknowledged, we the undersigned offer to perform the services in conformity with the said conditions of Contract and Terms of Reference for the sum of _____ (Total Bid Amount in words and figures) or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this Bid.

We undertake, if our Bid is accepted, to commence the work within ( ) days calculated from the date of award of Contract.

If our Bid is accepted, we will obtain the guarantee of a bank in a sum not exceeding _____ for the due performance of the Contract.

We agree to abide by this Bid for a period of 120 days from the date fixed for Bid opening and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal Contract is prepared and executed, this Bid, together with your written acceptance thereof in your notification of award shall constitute a binding Contract between us.

We understand that you are not bound to accept the lowest or any Bid you may receive.

Dated this _____ day of _____ 2017.

---
Signature
_____

(In the capacity of)

**PROFORMA - II B**

**FORM OF PERFORMANCE BANK GUARANTEE**

To: M/s. OIL INDIA LIMITED,
Attn: DGM (Projects-C&P)
Duliajan, Assam, India, Pin - 786602.

WHEREAS _____(Name and address of Contractor) (hereinafter called "Contractor") had undertaken, in pursuance of Contract No. _____ to execute (Name of Contract and Brief Description of the Work) _____ (hereinafter called "the Contract").

AND WHEREAS it has been stipulated by you in the said contract that the Contractor shall furnish you with a Bank Guarantee as security for compliance with Contractor's obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee; NOW THEREFORE we hereby affirm that we are Guarantors on behalf of the Contractor, up to a total of (Amount of Guarantee in figures) _____ in words) (_____), such amount being payable in the types and proportions of currencies in which the Contract price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of guarantee sum as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein. We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or the work to be performed thereunder or of any of the Contract documents which may be made between you and the Contractor shall in any way cease us from any liability under this guarantee, and we hereby waive notice of such change, addition or modification.

This guarantee is valid until the date _____

SIGNATURE AND SEAL OF THE GUARANTORS _____
Designation _____
Name of Bank _____
Address _____

Date ..... Place _____

**PROFORMA II-C**

## CONTRACT FORM

This Contract is made on ____ day of _____ between Oil India Limited, a Government of India Enterprise, incorporated under the Companies Act 1956, having its registered office at Duliajan in the State of Assam, hereinafter called the "Company" which expression unless repugnant to the context shall include executors, administrators and assignees on the one part, and M/s. _____ (Name and address of Contractor), hereinafter called the "Contractor" which expression unless repugnant to the context shall include executors, administrators and assignees on the other part.

WHEREAS the Company desires that Services _____ (brief description of services) should be provided by the Contractor as detailed hereinafter or as Company may requires.

WHEREAS, Contractor engaged themselves in the business of offering such services represents that they have adequate resources and equipment, material etc. in good working order and fully trained personnel capable of efficiently undertaking the operations and is ready, willing and able to carry out the said services for the Company as per Section-II attached herewith for this purpose.

WHEREAS, Company issued a firm Letter of Award No. _____ based on Offer no. _____ submitted by the Contractor against Company's Tender no. _____.

WHEREAS Contractor has accepted Company's Letter of Award vide their letter no. _____.

All these aforesaid documents shall be deemed to form and be read and construed as part of this Contract. However, should there be any dispute arising out of interpretation of this contract in regard to the terms and conditions with those mentioned in Company's tender document and subsequent letters including the Letter of Award and Contractor's offer and their subsequent letters, the terms and conditions attached hereto shall prevail. Changes, additions or deletions to the terms of the contract shall be authorised solely by an amendment to the contract executed in the same manner as this contract.

NOW WHEREAS, in consideration of the mutual covenants and agreements hereinafter contained, it is hereby agreed as follows -

1. In this Contract words and expressions shall have the same meanings as are respectively assigned to them in the General Conditions of Contract referred to.

2. In addition to documents hereinabove, the following Sections and Annexures attached herewith shall be deemed to form and be read and construed as part of this agreement viz.:

(a) Section-I : General Conditions of Contract,
(b) Section-II : Terms of Reference / Scope of Work,
(c) Section-III : Schedule of Rates and Schedule of Payment

3. In consideration of the payments to be made by the Company to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Company to provide the Services and to remedy defects therein in conformity in all respect with the provisions of this Contract.

4. The Company hereby covenants to pay the Contractor in consideration of the provision of the Services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of this Contract at the times and in the manner prescribed by this Contract.

IN WITNESS thereof, each party has executed this contract at Duliajan, Assam as of the date shown above.

Signed, Sealed and Delivered,

| | |
|---|---|
| For and on behalf of<br>Company (Oil India Limited) | For and on behalf of<br>Contractor<br>(M/s. _____) |
| Name:<br>Status:<br>In presence of | Name:<br>Status:<br>In presence of |
| 1. | 1. |

2. 2.

**PROFORMA - II D**

## FORM OF BID SECURITY (BANK GUARANTEE)

To : M/s OIL INDIA LIMITED,
Attn: DGM (Projects-C&P)
Duliajan, Assam, India, Pin - 786 602.

WHEREAS, (Name of Bidder) _____ (hereinafter called "the Bidder") has submitted their offer Dated_____ for the provision of certain oilfield services (hereinafter called "the Bid") against OIL INDIA LIMITED, Duliajan, Assam, India (hereinafter called the Company)'s tender No.: _____. KNOW ALL MEN BY these presents that we (Name of Bank) _____ of (Name of Country) _____ having our registered office at _____ (hereinafter called "Bank") are bound unto the Company in the sum of ( * ) for which payment well and truly to be made to Company, the Bank binds itself, its successors and assignees by these presents. SEALED with the common seal of the said Bank this _____day of _____ 2017.

THE CONDITIONS of these obligations are:

(1) If the Bidder withdraws / modifies their Bid during the period of Bid validity specified by the Bidder; or
(2) If the Bidder, having been notified of acceptance of their Bid by the Company during the period of Bid validity:

(a) Fails or refuses to execute the form of Contract in accordance with the Instructions to Bidders; or
(b) Fails or refuses to furnish the Performance Security in accordance with the Instructions to Bidders;

We undertake to pay to Company up to the above amount upon receipt of its first written demand(by way of letter/fax/cable), without Company having to substantiate its demand provided that in its demand Company will note that the amount claimed by it is due to it owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including the date ( ** ) and any demand in respect thereof should reach the Bank not later than the above date.

SIGNATURE AND SEAL OF THE GUARANTORS _____

Name of Bank & Address _____
Date ..... Place _____

* The Bidder should insert the amount of the guarantee in words and figures.
** Date of expiry of Bank Guarantee should be minimum 30 days after the end of the validity period of the Bid.

**PROFORMA - III**

**PROFORMA LETTER OF AUTHORITY**

TO

DGM (Projects-C&P)
Oil India Ltd.,
P.O. Duliajan - 786 602
Assam, India

Sir,

Sub : OIL's Tender No. _____

We _____ confirm that Mr. _____ (Name and address) as authorised to represent us to Bid, negotiate and conclude the agreement on our behalf with you against Tender Invitation No. _____ for hiring of services for _____.

We confirm that we shall be bound by all and whatsoever our said representative shall commit.

Yours Faithfully,

Signature: _____
Name & Designation: _____
For & on behalf of: _____

**Note :** This letter of authority shall be on printed letter head of the Bidder and shall be signed by a person competent and having the power of attorney (power of attorney shall be annexed) to bind such Bidder. If signed by a consortium, it shall be signed by members of the consortium.

**PROFORMA -IV**

## INTEGRITY PACT

Between

Oil India Limited (OIL) hereinafter referred to as "The Principal"

And

(Name of the bidder )..... hereinafter referred to as "The Bidder/Contractor"

**Preamble :**

The Principal intends to award, under laid down organizational procedures, contract/s for "**Hiring of Services for Engineering Procurement Construction Management Consultancy (EPCM) for creation of Surface Production Facilities (GGS and OCS) at Nadua & East Khagorijan, Dibrugarh, Assam**

**".**

The Principal values full compliance with all relevant laws and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder/s and Contractor/s.

In order to achieve these goals, the Principal cooperates with the renowned international Non-Governmental Organisation "Transparency International" (TI). Following TI's national and international experience, the Principal will appoint an external independent Monitor who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

### Section 1 - Commitments of the Principal

(1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

1. No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise

for or accept, for him/herself or third person, any material or immaterial benefit which he/she is not legally entitled to.

2. The Principal will, during the tender process treat all Bidders with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidders the same information and will not provide to any Bidder confidential/additional information through which the Bidder could obtain an advantage in relation to the tender process or the contract execution.

3. The Principal will exclude from the process all known prejudiced persons.

(2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the relevant Anti-Corruption Laws of India, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

**Section 2 - Commitments of the Bidder/Contractor**

(1) The Bidder/Contractor commits itself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

1. The Bidder/Contractor will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or immaterial benefit which h e/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

2. The Bidder/Contractor will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, Subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelisation in the bidding process.

3. The Bidder/Contractor will not commit any offence under the relevant Anticorruption Laws of India; further the Bidder/Contractor will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

4. The Bidder/Contractor will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

(2) The Bidder/Contractor will not instigate third persons to commit offences outlined above or be an accessory to such offences.

**Section 3- Disqualification from tender process and exclusion from future Contracts**

If the Bidder, before contract award has committed a transgression through a violation of Section 2 or in any other form such as to put his reliability or risibility as Bidder into question, the Principal is entitled to disqualify the Bidder from the tender process or to terminate the contract, if already signed, for such reason.

1. If the Bidder/Contractor has committed a transgression through a violation of Section 2 such as to put his reliability or credibility into question, the Principal is entitled also to exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the circumstances of the case, in particular the number of transgressions, the position of the transgressions within the company hierarchy of the Bidder and the amount of the damage. The exclusion will be imposed for a minimum of 6 months and maximum of 3 years.

2. The Bidder accepts and undertakes to respect and uphold the Principal's Absolute right to resort to and impose such exclusion and further accepts and undertakes not to challenge or question such exclusion on any ground, including the lack of any hearing before the decision to resort to such exclusion is taken. This undertaking is given freely and after obtaining independent legal advice.

3. If the Bidder/Contractor can prove that he has restored/recouped the Damage caused by him and has installed a suitable corruption prevention system, the Principal may revoke the exclusion prematurely.

4. A transgression is considered to have occurred if in light of available evidence no reasonable doubt is possible.

**Section 4 - Compensation for Damages**

1. If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover from the Bidder liquidated damages equivalent to 3 % of the value of the offer or the amount equivalent to Earnest Money Deposit/Bid Security, whichever is higher.

2. If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher.

3. The bidder agrees and undertakes to pay the said amounts without protest or demur subject only to condition that if the Bidder/Contractor can prove and establish that the exclusion of the Bidder from the tender process or the termination of the contract after the contract award has caused no damage or less damage than the amount or the liquidated damages, the Bidder/Contractor shall compensate the Principal only to the extent of the damage in the amount proved.

**Section 5 - Previous transgression**

1. The Bidder declares that no previous transgression occurred in the last 3 years with any other Company in any country conforming to the TI approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.

2. If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

**Section 6 - Equal treatment of all Bidders/Contractor/Subcontractors**

1. The Bidder/Contractor undertakes to demand from all subcontractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.

2. The Principal will enter into agreements with identical conditions as this one with all Bidders, Contractors and Subcontractors.

3. The Principal will disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

**Section7-Criminal charges against violating Bidders/Contractors/Subcontractors**

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor, which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

**Section 8 - External Independent Monitor/Monitors**

**(three in number depending on the size of the contract)**

**(to be decided by the Chairperson of the Principal)**

1. The Principal appoints competent and credible external independent Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

2. The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the Chairperson of the Board of the Principal.

3. The Contractor accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder/Contractor/Subcontractor with confidentiality.

4. The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

5. As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or heal the violation, or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

6. The Monitor will submit a written report to the Chairperson of the Board of the Principal within 8 to 10 weeks from the date of reference or intimation to him by the 'Principal' and, should the occasion arise, submit proposals for correcting problematic situations.

7. If the Monitor has reported to the Chairperson of the Board a substantiated suspicion of an offence under relevant Anti-Corruption Laws of India, and the Chairperson has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8. The word 'Monitor' would include both singular and plural.

**Section 9 - Pact Duration**

This Pact begins when both parties have legally signed it. It expires for the Contractor 12 months after the last payment under the respective contract, and for all other Bidders 6 months after the contract has been awarded.

If any claim is made/ lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/determined by Chairperson of the Principal.

page 6 of 6

**Section 10 - Other provisions**

1. This agreement is subject to Indian Law. Place of performance and jurisdiction is the Registered Office of the Principal, i.e. New Delhi.

2. Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.

3. If the Contractor is a partnership or a consortium, this agreement must be, signed by all partners or consortium members.

4. Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intensions.

---------- ----------

For the Principal For the Bidder/Contractor

Place. Duliajan. Witness 1 : .....

Date .---------- . Witness 2 : .....

**PROFORMA-V**

**PARENT COMPANY GUARANTEE**
**DEED OF GUARANTEE**

This DEED OF GUARANTEE executed at ---------- this ---------- Day of _____by:

M/S ----------., a Company organized and existing under the laws of---------- having a principal business office at ---------- hereinafter referred to as "Guarantor" which expression shall, unless excluded by or repugnant to the subject or context thereof, be deemed to include its successors and permitted assigns.

WHEREAS

M/S OIL INDIA LIMITED (OIL), a Govt. Of India "Navaratna" category Enterprise and premier Oil Company engaged in Exploration, production and transportation of Crude oil & Natural gas having its Headquarters at Duliajan-786602,Dist. Dibrugarh, Assam hereinafter referred to as "Company" which expression shall, unless excluded by or repugnant to the subject or context thereof ,be deemed to include its successors and assigns, floated Tender No. **----------**inviting offers from Vendors for ----------.

M/S ----------, a Company registered under the Company's Act 1956 and having its Registered Office at ----------hereinafter referred to as "Subsidiary", which expression shall, unless excluded by or repugnant to the subject or context thereof, be deemed to include its successors and permitted assigns, a wholly owned subsidiary of the Guarantor, have in response to the above mentioned tender invited by the Company, submitted their Bid No. ---------- dated---------- to the Company with one of the condition that the Subsidiary shall arrange a guarantee from its parent company guaranteeing due and satisfactory performance of the work covered under the said tender including any change therein as may be deemed appropriate by the Company at any stage.

. The Guarantor represents that they have gone through and understood the requirement of the above mentioned tender and are capable of and committed to provide technical, financial and such other supports as may be required by the Company for successful execution of the same.

The Subsidiary and the Guarantor have entered in to an agreement dated …… as per which the Guarantor shall be providing technical, financial and such other supports as may be necessary for performance of the work relating to the said tender.

Accordingly, at the request of the Subsidiary and in consideration of and as a requirement for the Company to enter into agreements with the Subsidiary, the Guarantor hereby agrees to give this Guarantee and undertakes as follows:

1. The Guarantor (Parent Company) unconditionally agrees that in case of non-performance by the Subsidiary of any of its obligations in any respect, the Guarantor shall immediately on receipt of notice of demand by the Company take up the job without any demur or objection, in continuation and without loss of time and without any cost to the Company and dully perform the obligations of the Subsidiary to the satisfaction of the Company. In case the Guarantor also fails to discharge its obligations herein and complete the job satisfactorily, the Company shall have absolute rights for effecting the execution of the job from any other person at the risks and costs of the Guarantor. The Guarantor also undertakes to make good any loss that may be caused to the Company for non-performance or un-satisfactory performance by the Guarantor or Subsidiary of any of their obligations.

2. The Guarantor agrees that the Guarantee herein contained shall remain valid and enforceable till the satisfactory execution and completion of the work (including discharge of the warranty obligations) awarded to the Subsidiary.

3. The Guarantor shall be jointly with the Subsidiary as also severally responsible for satisfactory performance of the contract entered between the Subsidiary and the Company.

4. The liability of the Guarantor under this Guarantee is limited to the total value of the contract entered between the Subsidiary and the Company and in no event shall the Guarantor's liability hereunder, either in its capacity of Guarantor or as Contractor should it perform the Contract in the event of the subsidiary's non-performance as per point No.1 herein above, exceed that of the Subsidiary under

the mutually agreed Contract awarded to the Subsidiary. This will, however, be in addition to the forfeiture of the Performance Guarantee furnished by the Subsidiary.

5. The Guarantor represents that this Guarantee has been issued after due observance of the appropriate laws in force in India. The Guarantor hereby undertakes that the Guarantor shall obtain and maintain in full force and effect all the Governmental and other approvals and consents that are necessary and do all other acts and things necessary or desirable in connection there with or for the due performance of the Guarantors obligations hereunder.

6. The Guarantor also agrees that this Guarantee shall be governed and construed in accordance with the laws in force in India and subject to the exclusive jurisdiction of the courts of Assam, India.

7. The Guarantor hereby declares and represents that this Guarantee has been given without any undue influence or coercion from any person and that the Guarantor has fully understood the implications of the same.

8. The Guarantor represents and confirms that the Guarantor has the legal capacity, power and authority to issue this Guarantee and that giving of this Guarantee and the performance and observations of the obligations hereunder do not contravene any existing law or any judgment.

**For and on behalf of (Parent Company)**
**M/s ----------.**

**Per :**
**Signature :**
**Name :**
**Designation :**

**Witness : 1**
**Signature :**
**Name :**
**Designation :**
**Date :**
**Witness : 2**

**Signature :**
**Name :**

**Designation :**
**Date :**

**Format of agreement between bidder and the parent company (to be made on stamp paper of requisite value and notarized)**

This agreement made this --------- Day of ---------- by and between ---------- having its Registered Office at ---------- herein after referred to as bidder of the first part AND

M/S ----------, a Company organized and existing under the laws of ---------- having a principal business office at ---------- hereinafter referred to as "Parent Company" on the other part,

WHEREAS

M/S OIL INDIA LIMITED having its Headquarters at Duliajan-786 602, Dist: Dibrugarh, Assam (herein after referred to as OIL), has invited offers vide their Tender No……. inviting offers from Vendors for ……..

.

. AND WHEREAS

M/S ----------, (Bidder) intends to participate against the said tender and desires to have a financial and technical support of M/s ---------- (Parent Company) and whereas Parent Company represents that they have gone through and understood the requirement of the above mentioned tender and are capable of and committed to provide the services as required by the bidder for successful execution of the contract, if awarded to the bidder.

Now, it is hereby agreed to by and between the parties as follows:

1. M/S----------, (Bidder) will submit an offer to OIL for the full scope of work as envisaged in the tender document as a main bidder and liaise with OIL directly for any clarifications etc. in this contexts.
2. M/S ---------- (Parent Company) undertakes to provide financial, technical support and expertise, expert manpower and procurement assistance

and project management to support the bidder to discharge its obligations as per the Scope of Work of the tender/Contract for which the offer has been made by the bidder and accepted by the Parent Company.

However, as a minimum, following services will be covered by the Parent Company:

i)-----

ii)----- etc.

3. This agreement will remain valid till validity of bidder's offer to OIL including extension if any and till satisfactory performance of the Contract in the event the Contract is awarded by OIL to the bidder.
4. It is further agreed that for the performance of work during Contract period bidder and Parent Company shall be jointly and severally responsible to OIL for satisfactory execution of the Contract .
5. However, the bidder shall have the overall responsibility of satisfactory execution of the Contract awarded by OIL.

**In witness whereof the parties hereto have executed this agreement on the date mentioned above.**

| | |
|---|---|
| **For and on behalf of (Bidder)** | **For and on behalf of (Parent Company)** |
| **(M/S ----------)** | **(M/s----------.)** |
| **Signature :** | **Signature :** |
| **Name :** | **Name :** |
| **Designation** | **Designation :** |

**Witness : 1** **Witness : 1**

**Witness : 2** **Witness : 2**

**PROFORMA - VI**

## RECORD OF BIDDER'S PAST RELEVANT EXPERIENCE

| Sl No. | Clients Name, address & contact Telephone No. | Contract No. | Brief description of the contract | Contract period | | Contract value |
|---|---|---|---|---|---|---|
| | | | | From | To | |
| | | | | | | |

**Signature of the bidder**

**PROFORMA–VII**

***AUTHORISATION FOR ATTENDING BID OPENING***

TO
DGM (Projects-C&P)
Oil India Ltd.,
P.O. Duliajan - 786 602
Assam, India

Date : _____

Sir,

**Sub : OIL's IFB No.** _____

We authorise Mr. /Mrs. _____ (Name and address) to be present at the time of opening of the above IFB due on _____ at Duliajan on our behalf.

Yours Faithfully,

**Authorised Person's Signature:** _____

**Name:** _____
**Designation:** _____

**Seal of the Bidder:**

**Note**: This letter of authority shall be on printed letter head of the Bidder and shall be signed by a person who signs the bid.

**PROFORMA–VIII**

**UNDERTAKING BY BIDDER**

We _____(Name & Address of Firm)_____ hereby undertake that in the event the job of **Hiring of Services for Engineering Procurement Construction Management Consultancy (EPCM) for creation of Surface Production Facilities (GGS and OCS) at Nadua & East Khagorijan, Dibrugarh, Assam** against Tender Invitation No. ……..is awarded to us, we shall not be involved or engaged as the Engineering Consultant or perform any such duties on behalf of the LSTK/Package/Site Construction Contractor engaged by OIL afterwards for creation of production surface facilities **(GGS and OCS) at Nadua & East Khagorijan, Dibrugarh, Assam**.

Yours Faithfully,

Signature: _____
Name & Designation: _____
For & on behalf of: _____

**Note :** This undertaking shall be on printed letter head of the Bidder and shall be signed by a person competent and having the power of attorney (power of attorney shall be annexed) to bind such Bidder.

**PROFORMA –IX**

**"CURRICULUM VITAE" OF BIDDER'S PERSONNEL**

**Personnel Proposed for providing EPCM services for GGS at East Khagorijan and OCS at Nadua**

1. NAME :
2. DATE OF BIRTH :
3. NATIONALITY :
4. EDUCATION QUALIFICATION :
5. EXPERIENCE
   i) Total experience :
   ii) Years of experience in the field of providing consultancy services for type of projects as sought under BEC/BRC (Technical):
   iii) Number of assignments (in which he person was earlier associated):

| Name of the Employer | Name of the Client | Name of the Project | Year of Execution |
|---|---|---|---|
| | | | |

| | | | |
|---|---|---|---|
| | | | |

iv) Length of experience in the bidder's firm:

v) Position held in the bidder's firm:

9. Language known :

a) Speak :
b) Read :
c) Write :

**Note:** For each person, a separate page in format as above shall be used.

**(SEAL & SIGNATURE OF THE TENDER**

**PROFORMA-X**

**DETAILS OF OFFICES IN INDIA & OUTSIDE INDIA**

**(INCLUDING THOSE OF ASSOCIATE COMPANIES)**

| NO. OF OFFICES | | COMPLETE ADDRESS | | MANPOWER STRENGTH | | REMARKS IF ANY |
|---|---|---|---|---|---|---|
| INSIDE INDIA | OUTSIDE INDIA | INSIDE INDIA | OUTSIDE INDIA | INSIDE INDIA | OUTSIDE INDIA | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |

**(SEAL & SIGNATURE OF THE TENDER)**

**END OF PART 4**