



## Oil India Limited

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

## CONTRACTS DEPARTMENT

FAX : (91) 374-2803549  
TEL : (91) 374-2800548  
Email:[contracts@oilindia.in](mailto:contracts@oilindia.in)  
Website:[www.oil-india.com](http://www.oil-india.com)

### SECTION - I

#### Forwarding Letter

**Tender No. DCG 0597 P09**

To,

.....  
.....  
.....

**Serial No.**

**Tender Fee: Rs. 10,000/-**

1.1 OIL INDIA LIMITED (OIL), a 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.

1.2 In connection with its operations OIL has proposed to create a Secondary Tank Farm (STF) near Naoholia, Duliajan, Assam with safe storage capacity of crude oil by 40,000 KLs. OIL invites Domestic Bids from suitably qualified EPMC (Engineering and Project Management Consultant) to provide Consultancy Services for preparation of complete tender document including technical and commercial parts for inviting bids for EPC contractor based on the FEED and Detailed engineering carried out for STF in consultation with OIL and finally selection of EPC contractor for Construction of ITF on **Lump Sum Turnkey Basis**. One complete set of Bid Document covering OIL's tender for the above is forwarded herewith. Please submit your most competitive bid on or before the scheduled Bid Closing Date and Time. For your ready reference, a few salient points (covered in detail in this Bid Document) are highlighted below:

- (i) TENDER NO. : **DCG 0597 P09**
- (ii) BIDDING SYSTEM : Single Stage-Two Bid
- (iii) BID CLOSING DATE & TIME : 06<sup>th</sup> January, 2009 : 12:45 PM (IST)
- (iv) SALE OF TENDER DOCUMENT : 28<sup>th</sup> October to 28<sup>th</sup> November, 2008
- (v) PRE-BID CONFERENCE & SITE VISIT : To be held at Kolkata on 02<sup>nd</sup> and 03<sup>rd</sup> December, 2008
- (vi) TECHNO-COMMERCIAL UN-PRICED BID OPENING DATE & TIME : 06<sup>th</sup> January, 2009: 13.00 Hrs (IST)
- (vii) PRICE BID OPENING DATE & TIME : Will be intimated to eligible bidders nearer the time.

(viii) BID OPENING PLACE : Office of

- Head (Contracts)  
Oil India Limited  
Duliajan (Assam), PIN 786602
- (ix) BID SECURITY AMOUNT : Rs. 3,00,000.00  
(Three Lakhs Only)
- (x) AMOUNT OF PERFORMANCE GUARANTEE : 10% of the total contract value
- (xi) MOBILISATION TIME : 15(Fifteen) days from the date of intimation of award of Contract (LOA)
- (xii) QUANTUM OF LIQUIDATED DAMAGE FOR DEFAULT IN TIMELY COMPLETION OF THE PROJECT : 0.75 % of the total Contract value for delay in of each week or part thereof subject to a maximum of 10 %, in each of the three Phases.
- (xiii) BONUS FOR EARLY COMPLETION : 0.75% of total contract value for early completion of each week subject to maximum of 5% .
- (xiv) DURATION OF CONTRACT : For Completion of the Project and Commissioning of the Plant on LSTK basis -in 30 months from the date of Letter of Award (LoA)
- (xv) BIDS TO BE ADDRESSED TO : HEAD (Contracts)  
Oil India Limited  
Duliajan (Assam)  
Assam. PIN 786602.

1.3 OIL now looks forward to your active participation in the tender.

Thanking you,

Yours faithfully,  
OIL INDIA LIMITED

( A.C.Bhatta )  
HEAD (CONTRACTS)  
For EXECUTIVE DIRECTOR (SS&SB)

Place : Duliajan

Date : 25<sup>th</sup> October, 2008



**OIL INDIA LIMITED**

(A Government of India Enterprise)  
P.O. Duliajan, Dist-Dibrugarh, Assam, Pin-786602

## **NOTICE INVITING TENDER**

OIL INDIA LIMITED (OIL), a Government of India Enterprise, invites Indigenous Bids for Hiring of Services of a suitably qualified EPMC (Engineering & Project Management Consultant) to provide Consultancy services for Secondary Tank Farm (STF) Project, in accordance with the given Terms of Reference and Scope of work Complete set of Bid Document for the above service is available in website [www.oil-india.com](http://www.oil-india.com). Details are as under:-

- |                                       |   |
|---------------------------------------|---|
| 1. Tender No.                         | : DCG 0597 P09                                      |
| 2. Tender fee                         | : Rs. 10,000.00 (Non refundable)                    |
| 3. Pre-bid Conference at Kolkata on   | : 02 <sup>nd</sup> & 03 <sup>rd</sup> December,2008 |
| 4. Bid closing date                   | : 06.01.2009 (12-45 Hrs. IST)                       |
| 5. Bid security Amount                | : Rs. 3,00,000.00                                   |
| 6. Technical Bid opening date & place | : 06.01.2009 (13-00 Hrs. IST) at<br>Duliajan        |

Complete set of Tender Document ( Non transferable) is available for sale from (a) Head-Contracts, Oil India Limited, Duliajan-786 602, Assam (b) Head (Kolkata-Branch), Oil India Limited, 4 India Exchange Place, Kolkata-700 001, (c) Sr. Adviser (Contracts & Purchase), Oil India Limited, Plot No.19, Sector-16 A, Noida-201301 U.P

### **Eligibility Criteria:-**

The bidder must be an ISO-9001 or equivalent certified consulting firm providing Engineering and Project Management Consultancy (EPMC) services in the creation of surface facility in upstream Oil & Gas sector for last 5 (five) years as on the Bid Closing Date.

The bidder shall also have experience in successfully execution of at least 2(two) EPMC consultancy jobs incorporating Front End Engineering Design (FEED), state-of-the-art Best Available Technology (BAT), preparation of Engineering Bid Package, EPC contractor selection, Detailed Engineering and Project Management including selection, procurement, installation and commissioning in surface facility projects in upstream oil & gas sector during last 5 (five) years. Documents in support of these criteria to be submitted.

Head-Contracts

For Executive Director(SS & SB)

## **SECTION - II**

### **INSTRUCTIONS TO BIDDERS**

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.

**A. BIDDING DOCUMENTS**

2.0 The services required, bidding procedures and contract terms are prescribed in the Bidding Documents. This bidding document includes the following:

- (a) A forwarding letter highlighting the following points (Section-I) :
  - (i) Company's Tender No.
  - (ii) Bid closing date and time.
  - (iii) Bid opening date, time and place.
  - (iv) Bid submission place.
  - (v) Bid opening place.
  - (vi) The amount of Bid Security.
  - (vii) The amount of performance guarantee.
  - (viii) Quantum of liquidated damages for default in timely Mobilisation
  - (ix) Duration of the Contract
- (b) Instruction to Bidders (Section-II)
- (c) General Conditions of Contract (Section-III)
- (d) Terms of Reference/Technical specifications (Section-IV)
- (e) Schedule of Rates / Price Bid Format (Section-V)
- (g) Bid Rejection Criteria (BRC)/Bid Evaluation Criteria (BEC)- (Section-VI)
- (h) Statement of Compliance (Proforma-I).
- (j) Bid Form (Proforma-II A).
- (k) Form of Performance Bank Guarantee (Proforma-II B).
- (l) Contract Form (Proforma-II C).
- (m) Form of Bid Security (Bank Guarantee) (Proforma-II D).
- (n) Proforma Letter of Authority (Proforma-III)

2.1 The bidder is expected to examine all instructions, forms, terms and specifications in the Bidding Documents. Failure to furnish all information required in the Bidding Documents or submission of a bid not substantially responsive to the Bidding Documents in every respect will be at the Bidder's risk & responsibility and may result in the rejection of its bid.

**3.0 AMENDMENT OF BIDDING DOCUMENTS:**

3.1 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 Bidding Documents by the issuance of an Addendum.

3.2 The Addendum will be sent in writing or by Fax to all prospective Bidders to whom Company has sent the bid documents. 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.

**B. PREPARATION OF BIDS:**

4.0 **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 English translated version, which shall govern for the purpose of bid interpretation.

5.0 **DOCUMENTS COMPRISING THE BID:**

5.1 The bid submitted by the Bidder 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 Para 9.0.
- (iii) Bid Security furnished in accordance with Para 10.0.
- (iv) Statement of compliance as per **Proforma -I**.

**B. COMMERCIAL/PRICE BID**

- (i) Bid Form (as per Performa-II A)
- (ii) Schedule of Rates/ Price Bid Format (as per Section-V)

6.0 **BID FORM:** The bidder shall complete the Bid Form and the appropriate Price Schedule furnished in the Bid Document.

7.0 **BID PRICE:**

7.1 Unit prices must be quoted by the bidders both in words and in figures.

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

7.3 All duties (except customs duty which will be borne by Company) and taxes including Corporate Income Taxes and other levies payable by the successful bidder under the Contract for which this Bidding 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.

8.0 **CURRENCIES OF BID AND PAYMENT:** INR ( Indian Rupees )

9.0 **DOCUMENTS ESTABLISHING BIDDER'S ELIGIBILITY AND QUALIFICATIONS :** These are listed in Section-VI.

10.0 **BID SECURITY:**

10.1 Pursuant to Para 5.0 the Bidder shall furnish as part of its Technical bid, Bid Security in the amount as specified in the "Forwarding Letter". (Section-I)

10.2 The Bid Security is required to protect the Company against the risk of Bidder's conduct, which would warrant the security's forfeiture, pursuant to sub-para 10.7.

10.3 The Bid Security shall be denominated in the currency of the bid or another freely convertible currency, and shall be in one of the following form:

(a) A bank guarantee issued by a scheduled Indian bank in the form provided in the Bidding Documents or another form acceptable to the Company and valid for 30 days beyond the validity of the bids.

(b) A cashier's cheque or demand draft drawn on 'Oil India Limited' and payable at Duliajan, Assam.

10.4 Any bid not secured in accordance with sub-para 10.1 and/or 10.3 shall be rejected by the Company as non-responsive.

10.5 Unsuccessful Bidder's Bid Security will be discharged and/or returned within 30 days of expiry of the period of bid validity.

10.6 Successful Bidder's Bid Security will be discharged upon the Bidder's signing of the contract and furnishing the performance security.

10.7 The Bid Security may be forfeited:

(a) If any Bidder withdraws their bid during the period of bid validity (including any subsequent extension) specified by the Bidder on the Bid Form, or

(b) If a successful Bidder fails:

i) To sign the contract within a reasonable time and within the period of bid validity, and /or

ii) To furnish Performance Security.

#### 11.0 **PERIOD OF VALIDITY OF BIDS:**

11.1 Bids shall remain valid for 180 days after the date of bid opening prescribed by the Company.

11.2 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 (or by Fax). The bid Security provided under para 10.0 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.

#### 12.0 **FORMAT AND SIGNING OF BID:**

12.1 The Bidder shall prepare four copies of the bid clearly marking "ORIGINAL BID" and rest "COPY OF BID". In the event of any discrepancy between them, the original shall govern.

12.2 The original and all copies of the bid shall be typed or written in indelible inks and shall be signed by the Bidder or a person or persons duly authorized to bind the Bidder to the contract. The letter of authorization (as per Proforma III) shall be indicated by written power of attorney accompanying the bid. All pages of the bid, except for un-amended printed literature, shall be initialed by the person or persons signing the bid.

12.3 The bid should 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 signing the bid.

**C. SUBMISSION OF BIDS:**

**13.0 SEALING AND MARKING OF BIDS :**

13.1 The tender is being processed according to single stage - Two bid procedure. Offers should be submitted in two parts viz. Technical bid and Commercial bid each in quadruplicate (one Original and 3 copies).

13.2 The Bidder shall seal the original and each copy of the bid duly marking as "ORIGINAL" and "COPY".

13.3 The cover containing the Technical Bid (Original + 3 copies) should be in one sealed cover bearing the following on the right hand top corner.

- (i) Envelope No.1 Technical bid
- (ii) Tender No.\_\_\_\_\_.
- (iii) Bid closing date \_\_\_\_\_.
- (iv) Bidder's name \_\_\_\_\_.

13.4 The cover containing the Commercial Bid (Original + 3 copies) should be in a separate sealed cover bearing the following on the right hand top corner.

- (i) Envelope No.2 Commercial bid
- (ii) Tender No. \_\_\_\_\_.
- (iii) Bid closing date \_\_\_\_\_.
- (iv) Bidder's name \_\_\_\_\_.

13.5 The above mentioned two separate covers containing Technical and the Commercial bids should then be put together in another envelope bearing the following details on the top and the envelope should be addressed to the person(s) as mentioned in the "Forwarding Letter".

- (i) Tender No.\_\_\_\_\_.
- (ii) Bid closing date\_\_\_\_\_.
- (iii) Bidder's name\_\_\_\_\_.

13.6 The offer should contain complete specifications, details of services and equipment/accessories offered together with other relevant literature/catalogues of the equipment offered. The Bid Security mentioned in para 10.0 should be enclosed with the Technical Bid. **The price Schedule should not be put in the envelope containing the Technical Bid.**

Performa-I without the CIF values should be enclosed with the Technical bid and the same with the CIF values should be put in the Commercial bid.

13.7 All the conditions of the contract to be made with the successful bidder are given in various Sections of this document. Bidders are requested to state their compliance/ non-compliance to each clause as per **PROFORMA-I**. This should be enclosed with the technical bid.

13.8 Timely delivery of the bids is the responsibility of the Bidder. Bidders should send their bids as far as possible by Registered Post or by Courier Services. Company shall not be responsible for any postal delay/ transit loss.

13.9 Cable/ Fax/E-mail/ Telephonic offers will not be accepted.

14.0 **INDIAN AGENTS:**

14.1 Bidders are requested to clearly indicate in their quotation whether they have an agent in India. If so, the bidders should furnish the name and address of their agents and state clearly whether these agents are authorised to receive any commission. The rate of the commission should be indicated which will be payable in non-convertible Indian currency according to Import Trade Regulation of India. Unless otherwise specified, it will be assumed that an agency commission is not involved in the particular bid. Further, Bidders are requested to quote directly and not through their agents in India.

15.0 **DEADLINE FOR SUBMISSION OF BIDS:** Bids must be received by the company at the address specified in the "Forwarding Letter" not later than 12-45 Hrs. (Indian Standard Time) on the bid closing date mentioned in the "Forwarding Letter".

16.0 **LATE BIDS:** Any Bid received by the Company after the deadline for submission of bids prescribed by the Company shall be rejected.

17.0 **MODIFICATION AND WITHDRAWAL OF BIDS:**

17.1 The Bidder after submission of bid may modify or withdraw its bid by written notice prior to bid closing.

17.2 The Bidder's modification or withdrawal notice shall be prepared sealed, marked and dispatched in accordance with the provisions of para 13.0. A withdrawal notice may also be sent by fax but followed by a signed confirmation copy, postmarked not later than the deadline for submission of bids.

17.3 No bid can be modified subsequent to the deadline for submission of bids.

17.4 No bid may 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.

## **18.0 BID OPENING AND EVALUATION**

18.1 Company will open the Bids, including submission made pursuant to para 17.0, in the presence of Bidder's representatives who choose to attend at the date, time and place mentioned in the Forwarding Letter. However, an authorization letter 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.

18.2 Bid for which an acceptable notice of withdrawal has been received pursuant to para 17.0 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 properly signed and whether the bids are generally in order.

18.3 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.

18.4 Company shall prepare, for its own records, minutes of bid opening including the information disclosed to those present in accordance with the sub-para 18.3.

18.5 To assist in the examination, evaluation and comparison of bids the Company may at its discretion, ask the Bidder for clarifications of its bid. The request for clarification and the response shall be in writing and no change in the price or substance of the bid shall be sought, offered or permitted.

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

18.7 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.

18.8 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.

**19.0 OPENING OF COMMERCIAL/PRICE BIDS**

19.1 Company will open the Commercial Bids of the technically qualified Bidders on a specific date in presence of interested qualified bidders. Technically qualified Bidders will be intimated about the bid opening date in advance.

19.2 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.

19.3 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 any Bidder does not accept the correction of the errors, their bid will be rejected. If there is a discrepancy between words, and figures, the amount in words will prevail.

20.0 **EVALUATION AND COMPARISON OF BIDS:** The Company will evaluate and compare the bids as per Section-VI of the bidding documents.

**21.0 CONTACTING THE COMPANY:**

21.1 Except as otherwise provided in para 18.0 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 para 18.5.

21.2 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:**

22.0 **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.

23.0 **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.

**24.0 NOTIFICATION OF AWARD:**

24.1 Prior to the expiry of the period of bid validity or extended validity ,the company will notify the successful Bidder in writing by registered letter or by cable or telex or fax (to be confirmed in writing by registered / couriered letter) that its bid has been accepted.

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

24.3 Upon the successful Bidder's furnishing of Performance Security pursuant to para 26.0 the company will promptly notify each un-successful Bidder and will discharge their Bid Security, pursuant to para 10.0 hereinabove.

**25.0 SIGNING OF CONTRACT:**

25.1 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 Bidding Documents, along with the General & Special Conditions of Contract, Technical Specifications, Schedule of rates incorporating all agreements between the parties.

25.2 Within 30 days of receipt of the final contract document, the successful Bidder shall sign and date the contract and return it to the company.

**26.0 PERFORMANCE SECURITY:**

26.1 Within 30 days of the receipt of notification of award from the Company the successful Bidder shall furnish the performance security for an amount specified in the Forwarding Letter in the performance Security Form as provided in the Bidding Documents or in any other form acceptable to the Company. 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.

26.2 The performance security specified above must be valid for one year (plus 3 months to lodge claim, if any) after the date of expiry of the tenure of the contract to cover the warranty obligations indicated in para 6.0 of Section III hereof. The same will be discharged by company not later than 30 days following its expiry.

26.3 Failure of the successful Bidder to comply with the requirements of para 25.0 or 26.0 shall constitute sufficient grounds for annulment of the award and forfeiture of the Bid Security. In such an event the Company may award the contract to the next evaluated Bidder or call for new bid or negotiate with the next lowest bidder as the case may be.

**27.0 LIQUIDATED DAMAGES FOR DEFAULT IN TIMELY MOBILISATION:** In the event of the Contractor's default in timely completion of each Phase of the Prioject within the stipulated period, the Contractor shall be liable to pay liquidated damages at the rate of 0.75% of the total contract value per week or part thereof of delay subject to maximum of 10.0 %. Liquidated Damages will be reckoned from the date after expiry of the scheduled completion time of each phase of the project (ref clause 5.0 of Section-IV and clause 1.11(a) of Section-VI of the Tender) The Company also reserves the right to cancel the Contract

without any compensation whatsoever in case of failure to adhere to the Project Schedule.

**28.0 ADVANCE PAYMENT:**

28.1 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.

28.2 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.

28.3 Bank guarantee shall be valid for 3 months beyond schedule completion period of the Project and the same may be invoked in the event of Contractor's failure to fulfill their obligations as per terms & conditions of the contract. In the event of any extension to the contract period, the 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 period.

**29.0 PRE-BID CONFERENCE:**

29.1 In order to clarify Bidder's queries on the bid document and enable them to understand the exact service requirement of the Company, a pre-bid conference will be held on 02<sup>nd</sup> & 03<sup>rd</sup> December, 2008 from 9.30 AM onwards at Kolkata for which venue will be intimated nearer the time. You are requested to please contact Shri A.C.Bhatta, Head-Contracts at Ph. 0374-2800548 or (M) 9435039045 to know the venue. Bidders interested to attend the pre-bid conference should intimate on/or before 30<sup>th</sup> November,2008 to the **Head (Contracts), Oil India Ltd., P.O. Duliajan-786602, Fax# (91) 374-2803549, E-mail: contracts@oilindia.in).**

29.2 At the most 2 (two) representatives from each prospective bidder shall be allowed to participate in the pre-bid conference. The bidder shall bear all the costs for attending the pre-bid conference and Company will not reimburse the same under any circumstances.

**&&&&&&&&**

## **SECTION III**

### **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-IV, the Terms of Reference;
- (d) "Company" means Oil India Limited (OIL);
- (e) "Contractor" 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.

#### **2.0 EFFECTIVE DATE, MOBILISATION TIME, DATE OF COMMENCEMENT OF THE CONTRACT AND DURATION OF CONTRACT:**

2.1 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 The mobilisation should be completed by Contractor **within a maximum period of 15 days from the date of issue of Letter of Award (LOA)**. Mobilisation shall be deemed to be completed when Contractor's personnel arrives at Duliajan to commence the Work as envisaged under the contract, and a Kick-Off meeting is held.

2.3 The date on which the mobilisation is completed in is treated as date of commencement of contract. The duration of the contract shall be for a period as

detailed in clause 5.0 of **Section-IV** and to be reckoned from the commencement date.

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 Terms of Reference (Section IV) in most economic and cost effective way.

3.2 Except as otherwise provided in the 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 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 immediately, 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, enroute/local

boarding, lodging & medical attention 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 the 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 execution of the Contract or within one year after completion of the operations 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 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.

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.

8.0 **TAXES, DUTIES & LEVIES :**

8.1 Tax levied 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.

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. 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 Tax clearance certificate for personnel and corporate taxes shall be obtained by the contractor from the appropriate Indian Tax authorities and furnished to company within 6 months of the expiry of the tenure of the contract or such extended time as the company may allow in this regard.

8.6 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.

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

8.8 All local taxes, levies and duties, sales tax, octroi, etc. on purchases and sales made by contractor (except customs duty) shall be borne by the Contractor.

8.9 **Service Tax:** Service Tax as applicable shall be payable by the Company. Bidders are requested to indicate Service Tax separately.

9.0 **INSURANCE:**

9.1 The contractor shall arrange insurance to cover all risks in respect of their personnel, materials and equipment belonging to the contractor or its subcontractor during the currency of the contract.

9.2 Contractor shall at all time during the currency of the contract provide, pay for and maintain the following insurances amongst others:

- 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 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 fulfill 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).
- 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 shall be governed by Indian Insurance regulations.
- f) Public Liability Insurance as required under Public Liability Insurance Act 1991.

9.3 Contractor shall obtain additional insurance or revise the limits of existing insurance as per Company's request in which case additional cost shall be to Contractor's account.

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

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

9.6 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 by Contractor for any reason whatsoever, loss/damage claims resulting there from shall be to the sole account of Contractor.

9.7 Contractor shall require all of their 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.

9.8 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.

#### 10.0 **CHANGES:**

10.1 During the performance of the work, Company may make a change 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 change 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 V**). 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 as provided herein. 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) 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 72 (Seventy two) hours after its occurrence, both the parties shall have no obligation. Either party will have the right to terminate the contract if such 'force majeure' condition, continue beyond ten (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 ten (15) days period unless otherwise agreed to. Time for performance of the relative obligation suspended by the '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 completion of acquisition of 1700 GLKM of 2D seismic data or expiry of duration of the Contract or extension, if any, there of, whichever is earlier.

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 upto 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 entirety 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 upto the date of termination.

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 upto 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.

12.11 Demobilisation charges in the event of termination under clause 12.3, 12.4, 12.5 and 12.6 will not be payable. Further, demobilisation charges will not also be payable under clause 12.7 if termination is due to contractor's default.

13.0 **SETTLEMENT OF DISPUTES AND ARBITRATION:** All disputes or differences whatsoever arising between the parties out of or relating to the construction, meaning and operation or effect of this contract or the breach thereof shall be settled by arbitration in accordance with the Rules of Indian Arbitration and Conciliation Act, 1996. The venue of arbitration will be **Guwahati/New Delhi**. 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 telex or Fax and confirmed in writing to the applicable address specified below:

**Company**

1) HEAD (Contracts)  
OIL INDIA LIMITED  
DULIAJAN-786602  
Fax.No.0374-2803549  
E-mail: [contracts@oilindia.in](mailto:contracts@oilindia.in)

**Contractor**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

15.0 **SUBCONTRACTING:** Contractor shall not subcontract or assign, in whole or in part, its obligations to perform under this contract, except with Company's prior written consent.

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



## SECTION-IV

### TERMS OF REFERENCE AND SCOPE OF WORK

<b>Clause No.</b>	<b>Description</b>	<b>Page Nos.</b>
1.0	INTRODUCTION :	25
2.0	OBJECTIVE :	25
3.0	EXECUTION METHODOLOGY (Phase-I, II &III) :	26-28
4.0	SCOPE OF SERVICES FOR EPMC :	28
4.1	STUDY TO BE PERFORMED :	28-29
4.2	FEED & DETAILED ENGINEERING :	29-35
4.3	INVOLVEMENT OF EPMC ON EPC CONTRACTOR :	35
4.4	ASSISTANCE IN PROJECT MANAGEMENT :	38
4.5	OPERATION & MAINTENANCE :	42
5.0	PROJECT SCHEDULE :	42
6.0	VARIOUS MILESTONES FOR EXECUTION :	42
7.0	PLANT BATTERY LIMIT :	43
8.0	SAFETY REGULATIONS & NORMS :	44
9.0	TIME SCHEDULE :	44
10.0	WARRANTY & PALNT COMMISSIONING :	44
11.0	ASSURANCE FROM EPMC :	45
12.0	SPECIAL CLAUSES :	45
13.0	GUARANTEES :	47
14.0	LIQUIDATED DAMAGES FOR DELAYS :	47-48
15.0	BONUS :	48
16.0	DRAWINGS / DOCUMENTS :	48
17.0	INTEGRATION & CO-ORDINATED EXECUTION :	49
18.0	LIST OF ANNEXURES :	49
19.0	ANNEXURE : A, B, C, D, E :	50-86

## **SECTION-IV**

### **TERMS OF REFERENCE AND SCOPE OF WORK**

**1.0 INTRODUCTION :** OIL INDIA LIMITED (OIL) is a pioneer oil company to explore & exploit crude oil & natural gas with its Headquarter at Duliajan, Assam. The nearest Airport at Dibrugarh is 45 km from Duliajan. Presently OIL has two tank farms for crude oil storage with storage capacity of 55,000 KLs and 36,000 KLs at Duliajan and Tengakhat respectively. The Central Tank Farm (CTF) at Duliajan was constructed in early sixties. With the introduction of OMR in 1984, some norms regarding safe distances of Bulk Storage Facilities for Crude oil were also came into force. In the present day scenario, the stringent guidelines of various other statutory bodies like DGMS, OISD, PCB etc. also needs to be considered. Moreover, it is felt that the age old tanks of CTF, without Cathodic Protection System, are susceptible to failure in due course of time. Moreover, considering OIL's vision for a quantum growth in production it is required to have additional storage facility for the produced crude. It has, therefore, been proposed to create a Secondary Tank Farm (STF) near Naoholia, Duliajan, Assam with safe storage capacity of crude oil by 40,000 KLs. Over and above the storage facility, the tank farm will include the facilities for:

- a) Dehydration of wet crude and pumping out of dry crude to NHK CTF,
- b) Treatment of separated formation water,
- c) Safe disposal of clarified /treated formation water for disposal into shallow disposal wells as well as to Water Injection Stations for injection to the reservoir.

The STF will be integrated to NHK CTF through piping network. The scope of work for STF also includes installation of LACT (Lease Automated Custody Transfer) facility at NHK CTF for custody transfer. Moreover, a HAZOP study of the existing facilities at NHK CTF also has to be carried out before connecting the installation to the new STF. Some renovation or replacements of the existing piping network in the NHK CTF are also to be carried out.

It has been planned to create these facilities with proven Best Suitable 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 custody transfer measurement for fluid at inlet and outlet.

#### **2.0 OBJECTIVE:**

Oil India Limited requires the services of a suitably qualified EPMC (Engineering and Project Management Consultant) to provide Consultancy Services for the of STF project in accordance with the given Terms of Reference.

This section establishes the scope and schedule for the work to be performed by the EPMC and describes the guidelines, instructions etc., which the EPMC shall satisfy or adhere to in the performance of the work.

The minimum facility envisaged for the Tank Farm covering different disciplines has been shown as Annexures to facilitate the bidders only to visualize the work requirement. However, EPMC shall design facilities based on current practice followed in upstream oil industry and in consideration of the statutory regulations like OMR (Oil Mines Regulations), Indian Boiler Act guidelines, IE Rules of statutory bodies like OISD (Oil Industries Safety Directorate), CMRI(Central Mining Research Institute), DGMS (Director General of Mines and Safety), PESO (Petroleum & Explosives Safety Organisation), Ministry of Environment and Forest, Assam Pollution Control Board, LMD (Legal Metrological Departments), and any other relevant laws, by-laws, or Acts in force. All electrical and instrumentation items must have DGMS approval for use in hazardous area zone-1, gas group-IIA & IIB of oil mines with DGMS logo embossed on the body of the equipment/instrument. However, Field trial permission for individual equipment/instrument will not be considered as approval from the Statutory Body.

3.0 **EXECUTION METHODOLOGY:** The entire project will be designed, executed ( Bar Chart is to be provided ) by EPMC in the following phase manner.

3.1 **Phase-I :**

- 3.1.1 Escape Evaluation and Rescue Analysis for STF as well as HAZOP study of STF and NHK CTF.
- 3.1.2 Best Suitable Technology selection from the proven state-of-the-art technologies available worldwide and recommendation thereof.
- 3.1.3 Front End Engineering and Design (FEED) to establish the system requirements considering entire life of the field.
- 3.1.4 Detailed Engineering and specifications for the various aspects viz. equipment, construction, structural, piping, mechanical, electrical, instrumentation etc.
- 3.1.5 Formulation of Health, Safety and Environment Policy.
- 3.1.6 Presentation of 3D modeling and computer animated AEC (Architectural, Engineering and Construction) Walkthrough to OIL for design visualization of entire plant layout with focus on critical processes and submit to OIL in 2 sets of R/W Compact Discs and updating the same as and when required till it is commissioned.
- 3.1.7 Display of construction sequences to facilitate evaluation of schedules in the 3D computer animated mode (AFC).
- 3.1.8 Presentation to OIL with details for approval.
- 3.1.9 Finalization of Project schedule (Bar Chart of the whole project) considering various facets of the job and cost estimates and taking approval from OIL.
- 3.1.10 Preparation of Tender document as per the technology selected and commercial requirements to obtain competitive bids from EPC contractor.
- 3.1.11 Issue tender documents to EPC contract bidders with the help of OIL.

- 3.1.12 Receive the bids from EPC contractor and evaluation of bids for technical and commercial compliance.
- 3.1.13 Submit the scrutinized bids for OIL's comments.
- 3.1.14 Selection of EPC contractor jointly with OIL.

### 3.2 **Phase-II** :

After selection of the EPC contractor, EPMC shall undertake the following. However, OIL shall have the right to verify, cross check the same from time to time.

- 3.2.1 Approval of residual engineering & drawing, technical specification/bid evaluation, etc., if any, prepared by EPC contractor.
- 3.2.2 Updation of construction sequences in the 3D animated computer model with display.
- 3.2.3 Inspection and expediting services.
- 3.2.4 Construction supervision and assistance in project management.
- 3.2.5 Adherence to the TOR requirements and control.
- 3.2.6 Monitor and control the project schedule.
- 3.2.7 Quality control and safety of operation.
- 3.2.8 Adherence to statutory guidelines followed in upstream oil industry.
- 3.2.9 Getting statutory approval for the entire STF and the individual equipment/ instrument as per clause 2.0.
- 3.2.10 Preparation of Tender document as per the technology selected and commercial requirements to obtain competitive bids from O&M contractor.
- 3.2.11 Issue of tender documents for O&M contract bidders with the help of OIL.
- 3.2.12 Receive the bids and evaluation of bids for technical and commercial compliance.
- 3.2.13 Submit the scrutinized bids for OIL's comments.
- 3.2.14 Selection of O&M contractor jointly with OIL.
- 3.2.15 Engaging a contractor for O&M for the project STF for a period of 6 (six) years.

### 3.3 **Phase-III** :

- 3.3.1 Pre-commissioning and integration of the plant.
- 3.3.2 Commissioning assistance.
- 3.3.3 Engaging competent manpower for pre-commissioning, preparation of manpower deployment pattern as per provisions of OMR and other Govt. regulation.
- 3.3.4 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.
- 3.3.5 Finalization & completion of 3D model computer animated Walk Through model of STF plant & handing over the same to OIL. In order to carryout the jobs as detailed above on a fast track, it is necessary that accurate and optimum specifications based on FEED are drawn and detailed engineering drawings are developed before implementation.

It is a strict time bound work and will require best efforts and deployment from the EPMC.

#### 4.0 SCOPE OF SERVICES FOR EPMC :

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

##### **A) HAZOP STUDY:**

- I) For STF: 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 presently been adopted in relation to different oilfield installation and downstream consumers. Effect of pigging operation of trunk line on the plant operation should be critically reviewed. Start up operations, stoppage and maintenance procedure being followed should also be reviewed. The approach developed by M/s ICC, UK is considered suitable for the HAZOP study.
- II) For NHK CTF: A Hazard & Operability (HAZOP) study of the existing facilities at NHK CTF is to be carried out with the aim to determine health of the installation as well as adequacy of the existing safety provisions & to identify operation related hazards. Suitable solution for safe operation of the Plant should also be suggested and implemented with OIL#s approval.

**B) 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.

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

- (i) Method of escape and evaluation 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) EPMC to provide situation based Disaster Management Plan for the installation.

**D)** Any other requirement as per ISRS (International Safety Rating System) protocol in addition to above.

**4.2 FRONT END ENGINEERING DESIGN AND DETAILED ENGINEERING :**  
The Engineering Project Management Consultant (EPMC) appointed for the project shall have the primary responsibility of carrying out Front End Engineering Design (FEED) and detailed 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 EPMC contractor and give basic guidelines of the Company's requirements time to time. OIL will bear necessary fees for obtaining approval from the statutory bodies.

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. The layout will be approved by OIL finally.

EPMC must provide Bar Chart indicating all the activities and time line including major milestones for Phases I, II & III separately as per project schedule given in clause 5.0.

The bidder/consortium should carry out design for Secondary Tank Farm (STF) as detailed below:

- A) The EPMC shall design the Secondary Tank Farm (STF) based on the crude quality and quantity and other data and minimum facilities envisaged for the project as indicated in this tender with due consideration of operation & maintenance facility.
- B) The designing of the Secondary Tank Farm including
- # Crude oil storage tanks and evacuation facility,
  - # Dehydration of wet crude,
  - # ETP (Effluent Treatment Plant) for treatment of produced formation waters as well as the water collected from OWS and within the premises,
  - # Disposal/injection system for the treated /clarified water and
  - # Solid waste/sludge management and disposal system, based on the above criteria, the EPMC shall consider proven and state of the art Best Suitable Technology.

- C) The EPMC shall design the integration of STF to be done with NHK CTF including LACT for custody transfer facility at NHK CTF.
- D) Space should be kept for creation of a Water Injection set up.
- E) Provision/Space should be considered during design of Plant Layout for future installation of Pig Launching & Receiving Trap at STF (Provision for connection of the piping system to the Pig launching & Pig receiving trap at a future date, to be created).
- F) Provision should be considered for future installation of Pig Receiving Trap at NHK CTF in crude receiving line from STF during design of LACT at NHK CTF.

**NOTE:** OIL shall provide available inputs/data/information on the quality and quantity of crude oil to be stored and processed daily or other relevant inputs as required by the EPMC for this purpose. (Ref Annexure-A, Clause no 1.07)

4.2.1 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 Best Suitable 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) Establishing a Tank Farm Management system and Preparation of Piping and Instrumentation Diagram.
- (g) Preparation of Process Package operating summary of design basis, brief description of plant, measurement- control-automation, flare system, effluent disposal system, P&ID, PFD, Plot Plan etc., utility requirement, gas 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 study of STF and NHK CTF.
- (j) Preparation of time schedule for implementation, detailed network for engineering and implementation.

4.2.2 EQUIPMENT ENGINEERING: It will include

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

- (b) Preparation of detailed drawings 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) Preparation of detailed mechanical design and detailed engineering of all fabricated equipment like vessels, storage tanks (crude oil and formation water), Effluent Treatment and disposal facilities, pumps, engines, piping system design, etc. based on process data sheets as per approved code of practice & using industry acceptable software.
- (d) Define scope and finalize engineering specifications based on process data sheets for all static and rotary equipment.
- (e) Provide specifications / standards for all equipment and machinery to be procured as part of turnkey supply considering system and statutory requirements.
- (f) Finalize agreed specification / standards for equipment/machinery to be incorporated in the contract of turnkey supplier in consultation with OIL.
- (g) Review/approval of drawings/documents of turnkey supplier during execution as necessary.

#### 4.2.3 MECHANICAL AND PIPING: It will include

- (a) Provide information applicable codes / standards for pipe classification.
- (b) 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, electrics and illumination and steam generation and distribution etc. required for the proposed system.
- (d) All engineering drawing for equipment, piping, civil foundation, structural, etc. as per standard industry practice followed in upstream oil industry and Govt. / statutory guidelines.
- (e) Selection of electrical and instrument items along with requisite specifications as per OMR, Indian Electricity Rules, OISD and DGMS guidelines.
- (f) 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.
- (g) Piping GADs, Isometrics etc., support details for process piping, source water pipe line, etc.
- (h) 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.
- (i) Provide final agreed specification/standards for piping engineering to be incorporated in contract of turnkey plant supplier in consultation with OIL.
- (j) Review/approval of drawing/documents of turnkey plant supplier during execution as necessary with respect to engineering performed and statutory requirement.

#### 4.2.4 INSTRUMENTATION: It will include

- (a) Preparation of controls & instrumentation system design philosophy as per statutory requirements of OMR, DGMS, OISD and other Govt. laws and by-laws.
- (b) Selection of Tank Farm Management System.
- (c) Preparation of interlocks and protection specs.
- (d) Preparation of control system scheme.
- (e) Preparation of measurement loop diagrams.
- (f) Preparation of instruments index and specifications for field instruments and accessories.
- (g) Preparation of control room layout and control panel GA drawings etc.
- (h) Designing of electronic mimic panel, surveillance camera and monitoring system.
- (i) Preparation of material requisitions including technical specifications/data sheets for all equipment and review/approval of vendor's contractor's design documents, if any.
- (j) Preparation of instrument layout drawings, cable schedule, and inter-connection diagrams.
- (k) Preparation of instrument installation standards and erection specifications.
- (l) Technical appraisal of all instrument items supplied as part of turnkey bids in consultation with OIL.
- (m) Provide final agreed specifications/standards for all instrument supplies and installation/erection under turnkey concept as part of contract document.
- (n) Review/approval of drawings/documents of turnkey supplier during execution as necessary with respect to engineering performed by the contractor.

4.2.5 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.
- (d) Preparation of cathodic protection system for crude storage tanks and pipings, cable tray/trench and earthing layouts.
- (e) Preparation of illumination layout drawings.
- (f) Preparation of typical installation drawings for installation, earthing and lighting fixtures.
- (g) Preparation of material requisition including technical specifications/data sheets for all electrical equipments.
- (h) Review of vendor's/contractor's generated drawings.
- (i) Equipment layout drawings and equipment, mounting and erection details.
- (j) Special alarm for substation equipment, drive motors, lighting fittings, motor control centers, security alarm at gate office etc.
- (k) Specify applicable codes / standards for electrical supplies and erection.
- (l) Technical appraisal of bids for all electrical items and concepts in turnkey bids in consultation with OIL.

- (m) Provide final agreed specifications / standards for all electrical supplies erection to be incorporated in the contract for turnkey plant.
- (n) Review/approval of drawings/documents of turnkey supplier during execution as necessary with respect to engineering performed by the contractor.

4.2.6 CIVIL & STRUCTURAL: It will include

- (a) The necessary soil testing to be carried out by EPMC and data collected to be analyzed, investigated. The final report of soil testing and topographical survey data are to be furnished to OIL for approval.
- (b) Development of design criteria for civil, structural and architectural work and finalization of the same.
- (c) Design of foundations and preparation of drawings of all equipment.
- (d) Preparation of preliminary systems for structural and reinforcement steel in advanced procurement action.
- (e) Design of foundations and preparation of drawings of various equipment, office and sheds 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. The equipment sheds should be designed as per the safe and standard practice followed in up stream oil industry.
- (f) Design and engineering of pavements, equipment or service drains. The process and storm water should have different streams. The storm water will be re-circulated to the fire water reservoir for further use. The process water will be treated in the ETP for clarification. In case of high generation of storm water during rainy season, provision will be there to deliver storm water into the Water Injection plant. Provision may also be considered to use the storm water as boiler feed water.
- (g) Technical appraisal of bids received for the civil/structural specifications/standard are to be scrutinized.
- (h) Provide final agreed specifications for civil / structural work for the turnkey plant supplier for final contract in consultation with OIL.
- (i) Review/approval of drawings/documents of turnkey supplier during execution as necessary with respect to engineering performed by the contractor.

4.2.7 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..
- (d) Prepare final agreed contract specifications for turnkey supplier in consultation with OIL.

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

#### 4.2.8 FIRE PROTECTION & SAFETY:

##### FIRE PROTECTION:

- (a) The fire protection and fire fighting facilities shall conform to OISD 117, OISD 189, OMR, NFPA and BIS norms and to meet requirements of ISRS protocol etc. in general.
- (b) Design of Fire water storage, pump, distribution network and preparation of fire water network diagram as. Per minimum facilities indicated in Annexure-A.
- (c) Design of Foam flooding system for floating roof 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 analysed 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.

##### SAFETY :

- (a) EPMC 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 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.
- (i) Possibility of rain water harvesting for static water tank storage may be looked into.
- (j) Disaster Management Plan is to be made based on Risk Analysis.
- (k) Spill Prevention Control & Counter Measure (SPCC) plan is to be made.
- (l) Standards for emissions from storage of volatile liquids may be considered.

##### **NOTE :**

The above lists are indicative only and not exhaustive. The EPMC shall suggest any other necessary design to make the system foolproof.

#### 4.3 **INVOLVEMENT OF EPMC ON EPC CONTRACTOR :**

##### 4.3.1. FOR SELECTION OF EPC CONTRACTOR FOR IMPLEMENTATION OF THE SECONDARY TANK FARM as per time schedule clause No: 5.0

- (a) Preparation of complete tender document including technical and commercial parts for inviting bids for EPC contractor based on the FEED and Detailed engineering carried out for Secondary Tank Farm in consultation with OIL.
- (b) Issue necessary tender documents to EPC contractors with the help of OIL.
- (c) Quotations received at OIL#s office shall be tabulated by EPMC on quotations comparison sheet and together with copies of all quotations and related correspondences forwarded to OIL with recommendations on the technically and commercially acceptable offer. The EPMC shall prepare TQ#s, obtain the replies and forward the recommendations based on this. Also EPMC shall organize requisite pre bid - post bid meetings in consultation with OIL and in presence of OIL#s representative for expeditious replies from Contractors.
- (d) On receipt of notification of OIL#s acceptance of EPMC#s recommendations on the EPC contractor, OIL shall award the contract to EPC Contractor after approval from competent authority and enter into agreement with the EPC contractor. EPMC will formulate the Contract agreement for EPC Contractor.
- (e) EPMC 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 (including period of O&M for six years) to OIL with classified prices and necessary specifications with details enabling OIL to procure directly in future.
- (f) The EPC will make necessary documentation for statutory approvals like DGMS approval, tank calibration certificate from Legal Metrological Department, Explosive License for storage of Crude oil from PESO, Permission/approval form other statutory bodies. The EPMC shall also document all study reports.

##### 4.3.2. SUPERVISION OF EPC CONTRACTOR#S WORK FOR CONSTRUCTION/ INSTALLATION AND COMMISSIONING OF THE SECONDARY TANK FARM: Construction Management, Supervision and Commissioning Assistance:

EPMC#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 experienced engineers. The number, duration and category of supervisory personnel to be deputed for this activity shall be mutually decided by EPMC and OIL. EPMC#s supervisor must be present at site on round the clock basis wherever job continues during 2nd and 3rd shifts. The services shall be rendered by EPMC in the following manner:

- (a) Ensure safe operation and execution of the work at site.
- (b) Approval of all residual engineering carried out by the EPC contractor with prior intimation to OIL.
- (c) Planning of work at site in consultation with OIL and EPC contractor.
- (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 EPC contractors. The same should be immediately reported to OIL and submit the Engineering Deviation Report (EDR).
- (g) Check and verify for payment of EPC contractor's bill relating to site work. Maintaining necessary measurement books/records of the EPC contractor's work.
- (h) EPMC shall scrutinize the invoices received from EPC contractor, get clarifications, if any, and forward to OIL with their recommendation to affect payment as per contractual provisions.
- (i) Follow-up and liaison with EPC contractor for all clarifications of technical details and approval of drawing, where required and also certify after scrutiny.
- (j) EPMC 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) EPMC may supervise the inspection activities in consultation with OIL 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. EPMC shall inform OIL about the progress of procurement action for different equipment on monthly basis.
- (l) Strictly ensure for compliance of proper safety measures by EPC.

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

- (a) The EPMC contractor will appoint a Safety Officer who must be conversant of all safety and statutory regulation during the period of construction.
- (b) Provide necessary competent supervisory staff in the related discipline at the construction site to review / supervise construction, erection of plant and equipment, civil and structural engineering works and others, approve the materials and workmanship of works.
- (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, soil investigation studies etc.
- (e) Carry out Technical audit review for supervision of civil / structural mechanical erection of equipment and machinery and piping.
- (f) Carry out Technical audit review for supervision of erection and installation of all electrical and instruments as necessary.
- (g) Supervision and verification of the final tests carried out after erection/installation of equipment and machinery, electrical, instruments and piping for turnkey package plants. OIL shall witness the construction of the various equipment and machinery during various stages of construction and the various tests at the supplier's works. OIL shall also

witness the inspections/hydro-test etc. carried out during various phases of manufacturing of equipment, vessels etc in the supplier#s work.

- (h) Organize site management meeting with the EPC contractor to ensure that work is carried out in safe and workman like manner in accordance with the specifications and to the programme. The EPMC contractor will monitor daily tool box meeting, fortnightly pit level safety meeting and bi-monthly safety meeting organized by the EPC contractor. The EPMC contractor will ensure that all these meetings are recorded.
- (i) Organize monthly project review meeting with OIL.
- (j) EPMC will assist OIL for maintaining record and enforcement of labour laws of other statutory requirements applicable in the state including insurance of workmen.
- (k) OIL shall monitor the entire execution of the project and shall give necessary guide lines to its requirement.

**B) COMMISSIONING ASSISTANCE:** After testing and completion of project, EPMC should ensure commissioning of the Secondary Tank Farm by the EPC contractor to the satisfaction of OIL and also arrange training of personnel from OIL and O&M contractor for a minimum period of 3 (three) months for day to day running and trouble shooting of the Tank Farm. Activities shall include:

- (a) Review of vendor#s P & IDs as necessary.
- (b) Preparation of SOPs. 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.
- (c) Review of plot plan, unit layouts, control room and panel layouts, instrument logics etc. as necessary.
- (d) Review start up, shutdown and emergency provisions and procedures.
- (e) Participate in planning and scheduling of plant start up activities, wherever necessary.
- (f) Assist EPC contractor in preparation of 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) EPMC 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.

4.4 **ASSISTANCE IN PROJECT MANAGEMENT:** The EPMC will engage one competent project Manager for the STF project. Also they will set up an office in Duliajan at its own cost for day-to-day co-ordination. Any infrastructural facility required for the same will be arranged by the EPMC.

**A) SUPERVISION IN PROJECT MANAGEMENT:** 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 EPC contractor. He shall be assisted by appropriate staff to control and coordinate all aspects of engineering, supply of equipment, material, construction activities and other 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) Liaison with OIL.
- (b) Carryout overall project management and administration of the project works covering planning, review, co-ordination and reporting.
- (c) Project management and technical inputs to OIL in deciding methodology of project execution, framing of NIT, item rate tenders and bid package documents for turnkey plants, finalizing procedures for evaluation of bids, contracts and assist OIL in obtaining government clearances.
- (d) Responsible for all acts and omissions of the EPC contractor in regard to the successful execution and commissioning of the project.
- (e) Certification of EPC 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. In respect of item rate tender, certification of contractor's bills shall be as per agreed practice.
- (f) Assist OIL in settlement of final bills with respect to extra claims and delivery extension for various contracts, upto a period of 3 (three) months from Mechanical completion / Commissioning of respective contracts / works.
- (g) Adoption of Project management Concept (PMC) for expediting works. This includes placement / deployment of personnel at contract / sub vendor works.
- (h) Overall management of the project including assisting OIL in cost control reporting in mutually agreed format using modern management tools.
- (i) Co-ordination of activities relating to the project of various departments within EPMC'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.
- (j) Overall planning, scheduling, monitoring and controlling of overall project progress. Assist OIL in cost planning and control.
- (k) Hold periodical review meetings with EPC contractor to monitor the progress identify constraints, slippages and suggest remedial measures.
- (l) Preparation of reports which shall be revised and issued to OIL on monthly basis, summarizing the status of Project. The report shall include the status of engineering, procurement, erection and construction activities to be carried out. The progress report shall highlight the specific 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 EPMC.
- (m) 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.
- (n) Prepare monthly cost statements and cash flow statements if required.

- (o) Necessary technical write-up and drawings shall also be submitted to OIL to enable them to prepare detailed Project Report.
- (p) Prepare Procurement Status Report on monthly basis.
- (q) Check all the equipment and material including debris, scrapes etc. being taken out from the site by EPC Contractor and prepare gate passes on OIL#s specified forms with proper counter signature and get the same authorized by OIL#s Project Manager.
- (r) Carry out process co-ordination.
- (s) Management of Procurement Services.

**B) PURCHASE:**

- (a) Provide all technical specifications and technical BID EVALUATION CRITERIA/ BID REJECTION CRITERIA 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 EPC contractor with process licensor, wherever necessary.
- (c) Evaluate bid 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 incorporating all changes as agreed upon with the bidder.
- (h) EPMC would assist OIL in replying all audit queries raised within one year of commissioning.

**C) INSPECTION / EXPEDITING**

- (a) Inspection shall be audit type such as reviewing essential documents and overall checks on quality for supplies through turnkey package.
- (b) Inspection of critical equipment at identified stages for supplies through turnkey package.
- (c) Review of QA/QC programme of contractors.
- (d) Witnessing performance test of critical equipment.
- (e) Expediting vendor#s work on case to case basis, required from time to time at the discretion of OIL.
- (f) OIL shall inspect the various equipment and machinery during the various stages of construction and tests at the manufacturer#s works. EPMC will intimate tentative locations/dates of such inspection before seven (7) days for in country and one (1) month for all foreign inspection. Cost of such inspection by OIL personnel will be borne by OIL

The EPMC 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. EPMC shall include site visits in his scope of work for data collection and report generation.

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

EPMC shall prepare and submit reports as follows and as mentioned in various clauses and annexure. Reports should include the followings:

**D1) Project Progress Reports shall include -**

- i. Daily Report: Daily report should include day to day progress report of site work.
- ii. Weekly 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 material or equipment procurement status report.
- iii. Monthly 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 EPMC.  
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 summarise 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 :** EPMC 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.

#### 4.5 **OPERATION & MAINTENANCE (O&M) :**

EPMC will formulate the tender and evaluate the bids for selection of an O&M Contractor for the plant for a period of six (6) years. EPMC will prepare a contract agreement for O&M of the Plant. OIL will undergo for the contract agreement with the successful O&M bidder.

EPMC will arrange and expedite services for selecting the O&M contractor prior to commissioning stage of the Plant. EPMC will arrange to provide training to O&M Contractor's personnel along with OIL personnel for safe operation & maintenance of the Plant for three (3) months during the commissioning period by EPC contractor.

5.0 **PROJECT SCHEDULE:** The EPMC shall work within the indicated time schedule as given under:

- # 3 (three) months for preparation of Front-end engineering design, detailed engineering, drawings, plot plans, P&IDs as per statutory guidelines and system requirements and preparation of tender documents, preparation of cost estimates.
- # 7 (seven) months for Invitation of Bids from EPC contractors and award of the job to EPC contractor.
- # 17 (seventeen) months for the completion of the entire project from the date of the award of the job to the EPC contractor and selection of O&M contractor.
- # 3 (three) months for trial run & commissioning of the plant and awarding the plant for O&M.

The above time schedule will be discussed in the pre-bid conference. A detailed micro time schedule shall be prepared by the EPMC on the basis of the time

schedule stipulated for execution of the project and shall be deemed to be a part of the Bid.

6.0 VARIOUS MILESTONES FOR EXECUTION: The time schedule for various activities to be completed by the EPMC during execution of this contract would be as under.

- (i) Front End Engineering and Design & Detailed Engineering for Installations : 05 (five) Weeks

The EPMC will have to submit reports in triplicate on FEED, detailed engineering along with all relevant drawings (hard and soft copy), computer animation of the entire plant operation etc. of the installation and HAZOP and Environmental Risk Assessment Study to OIL for clearance/ approval within 05 weeks from the date of receipt of all data and other related information from OIL.

- (ii) Preparation of tender documents based on Engineered Bid Package, Preparation of Cost Estimates: 07 (seven) Weeks

The EPMC will have to prepare all tender documents and invite bids for EPC 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 EPMC for clearance within 05 weeks of approval of (i) above.

- (iii) Invitation of Bids from EPC contractors, Evaluation of bids and recommendation of successful bidders : 28 (twenty eight) Weeks

On receipt of clearance from OIL, EPMC will invite bids as per guidance from OIL from the prospective bidders/ contractors as EPC within 04 week. The EPMC will evaluate all technical as well as commercial offers received against the tender and submit the evaluation reports to OIL with recommendation for finalization of contracts as per OIL#s guidelines. Evaluation reports with recommendations against each tender and preparation of documents for obtaining statutory approvals must be submitted to OIL within 21 weeks from the date of tender opening so that the process of award of contract could be finalized in next 03 week.

- (iv) Project Management and execution including Supervision of EPC contractor#s works on Residual Engineering, supply, Constructions and Erection of various equipment/ materials etc under guidelines from OIL: 68 weeks from the award of contracts to selected suppliers/contractors.

- (v) Trial run & Commissioning: Commissioning of facilities after due testing and arrangement of statutory permission and licenses as applicable. Handing over operation and maintenance manual for the major equipment to OIL, and engaging an O&M contractor from commissioning period: 12 Weeks after construction and erection of infrastructure.

**NOTE:** OIL reserves the right to engage the EPMC at its discretion for whole or part of the requirements mentioned under para 6.0(i) to 6.0(iv) above without thereby incurring any liability/obligation to the bidders.

#### 7.0 PLANT BATTERY LIMITS:

Battery limit for the plant starts at crude inlet manifold inside the plant.

Battery limit of the plant ends at-

- # Delivery header of the Crude Oil Despatch Pumps for treated crude.
- # Delivery header of clarified water disposal / injection.

Electrical power shall be provided from OIL's own captive power plant at a single point inside the plant. The bidder in his techno-commercial bid shall project power requirement for the plant. The details of the power to be supplied from OIL are indicated in the Annexure for minimum facilities envisaged.

Natural gas for fuel, servo system or otherwise shall be provided by OIL at a single off-take point inside the plant. The bidder in his techno-commercial bid shall project the requirement of natural gas usage for the plant. Battery limit for natural gas shall end at the flare header meant for flaring of the gas that would be in surplus of plant usage.

#### 8.0 SAFETY REGULATIONS & NORMS :

- ? 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.
- ? Equipment and materials procured either directly or indirectly through a tie-up or otherwise shall have necessary certification of Govt. approved agencies (CMRI 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.
- ? EPMC must ensure that all electrical items (including, among others, those of Crude Dehydration Units & Instrumentation & Control System etc.) shall have CMRI 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.
- ? All site work including operation and maintenance of the plant shall be carried out strictly in accordance with provisions stipulated in Indian Mines Act, Oil Mines Regulations, Indian Explosives Act and Indian Electricity Rules, Petroleum Rules, Indian Boiler Regulations etc in force and OISD and ISRS norms in vogue.
- ? In absence of a stipulated provision, sound industry practices shall guide the project execution work and operation & maintenance thereafter.

9.0 TIME SCHEDULE: The project shall be executed and completed in all respect within the quoted project completion period from the date of issue of Letter of Award (L.O.A.) to the successful EPMC bidder. The successful EPMC bidder upon issue of L.O.A. shall submit to OIL an implementation 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 tender document.

## 10.0 WARRANTY & PLANT COMMISSIONING:

The entire plant / system as well as each individual equipment, parts, components shall have warranty for a period of twenty-four (24) calendar months of reliable and trouble free regular working under the specified parameter and working condition from the date of commissioning of the plant.

Commissioning of the plant will be deemed to be complete upon expiry of 3 (three) months 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, its 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 EPMC competent personnel.

In the event of malfunctioning/defects of any equipment (including operation of the stand-by facilities), components, instrument, process and other by-pass systems during the first three months operation of the plant, the date of completion shall be counted from the day of rectification of such malfunctioning/defects etc. and the commissioning of the plant shall be considered upon completion of three months of trouble-free operation, as stated above, from such day of rectification. The warranty period would commence after completion of three months of continuous trouble-free operation from the day of such rectification.

## 11.0 ASSURANCE FROM EPMC:

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

11.1.1 EPMC shall provide OIL an assurance of the desired performance level in respect of both quality and designed handling capacity. The BS&W of the output crude shall not exceed 0.15% and oil content in clarified formation water shall be less than 10 ppm with NIL sludge content. The designed handling capacities of crude dehydration unit and ETP are 10,000 KLPD & 5,400 KLPD respectively.

11.1.2 Crude quality i.e. BS&W content and water quality i.e. oil content in clarified effluent water for this purpose shall be determined based on on-line monitoring, on-line report and testing of collected TMB samples at site laboratory. OIL of its own will periodically collect samples from the site and test it in OIL#s laboratory at Duliajan. In case of any major difference in the readings of on-line system and on-site sample test readings, the results of the sample tested at OIL#s own laboratory at Duliajan will be considered as final and binding.

## 12.0 SPECIAL CLAUSES:

12.1 EPMC must assure / provide the following along with the Bid

- a) The present status of the ongoing projects as an Annexure showing the list of clients, scope of work from each job and cost of the completed and ongoing projects indicating time schedule for each project carried out to completion with the country wise break up as a part of the proposal.
- b) Copies of document duly authorized defining the constitution and legal status of the bidder, place of registration and principal place of business.
- c) EPMC should indicate the capabilities and reliability of the software packages to be used, if need be, for generating the fluid properties, multiphase flow co-relations etc. This should in turn be substantiated with performance report from the projects completed on the basis of simulation carried out with help of such packages.
- d) EPMC 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 /EPMC). The project time schedules and the organograms covering the three phases shall form a part of the Bid.
- e) The EPMC 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 (should be finalized in pre bid conference). Any such modifications that might be required must be commercially viable. The EPMC along with the Bid, which will require approval of OIL, must provide a technical justification about this adaptability.
- f) To provide computer simulation of the entire plant operation which they conceive, their milestones and operations of the units. Presentation of 3D modeling and computer animated AEC (Architectural, Engineering and Construction) Walkthrough to OIL for design visualization of entire plant layout with focus on critical processes and submit to OIL in 2 sets of R/W Compact Discs and updating the same as and when required during till it is commissioned.
- g) The EPMC shall ensure that all statutory approvals for the Plant and its equipment and facilities are obtained from Statutory Bodies during the three months of trial run, without which the Plant will not be regarded as commissioned.

12.2 EPMC must confirm categorically the following points:

- (a) The entire Project must be completed in 30 months, the bidder 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 & TECHNICAL SPECIFICATIONS (SEVCTION IV) of this tender document. 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 EPMC must provide a guarantee for smooth running of the tank farm, without material failure, system defects/faults that affect operation of the plant, for a minimum period of two years from the date of successful commissioning.
- (c) The EPMC shall arrange field visits to similar dehydration facilities (non-Oil India Ltd.) 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.
- (d) OIL may deploy a team of Engineers to the extent necessary during any phase of EPMC#s work for association in design, review and approval at EPMC#s head office. This shall, however, in no way relieve EPMC of its obligations.
- (e) The EPMC 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. EPMC to categorically confirm that they are capable of completing all the jobs as specified in the tender. The action plan of the total contract job should be clearly indicated.
- (f) EPMC is required to strictly adhere to the time frame provided.
- (g) EPMC shall furnish a written undertaking in their bid expressing commitment to replace any of their personnel(s) at any point of time during the contractual period if, in the opinion of OIL, the said personnel(s) is / are not suitable to be member(s) of the Service team for any reason.

12.3 OIL may request EPMC in writing for changes, modifications, deletions and/or additions to EPMC#s Scope of work and EPMC shall carry out such changes etc. after mutual agreement.

#### 12.4 GUARANTEES:

12.4.1 GENERAL: EPMC 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.

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

12.4.3 MECHANICAL : For the benefit of the OIL, EPMC shall include in purchase requisitions and tender documents, the requirements of guarantees from EQUIPMENT AND MATERIAL VENDORS and erection contractors against defects in materials and workmanship.

12.5 LIQUIDATED DAMAGES FOR DELAYS: In the event of the project getting delayed beyond the agreed Time schedule solely due to acts or omissions to act by EPMC, OIL shall be entitled to recover liquidated damages at the rate of 0.75% of EPMC fees per week of delay subject to a maximum of 10% of EPMC fees.

12.6 BONUS: Bonus shall be given, for completion of the project before scheduled time, at the rate of 0.75% per week of the project cost (excluding O&M charges) up to a maximum of 5%. This clause shall also be referred to as Bonus Clause of this tender.

12.7 The bidder shall provide Best Suitable 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 management system.

# Foolproof safety of the plant and equipment

# Process control and automation.

The bidder may suggest other areas where BAT would add to better performance of the system.

12.8 The EPMC shall be responsible for and shall provide all requirements of his personnel and his 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.

12.9 DRAWINGS / DOCUMENTS:

I. The successful EPMC bidder shall prepare all engineering documentation & drawings and submit to OIL three (3) sets of the same for scrutiny and approval before execution. The successful bidder 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 stored in R/W Compact Disks (CD).

II. In particular, but not limited to, the documents & drawings shall include (including those mentioned in the entire tender)-

# 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

# Process Flow Diagram(s)

# Mechanical Flowsheet(s)

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

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

# 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

#### 12.10 INTEGRATION & CO-ORDINATED EXECUTION:

The scope of work of EPMC includes coordinated execution of the entire project without any time overrun as per the time frame given in the ensuing Sub-section 9.00 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.

#### LIST OF ENCLOSED ANNEXURES FOR MINIMUM FACILITIES ENVISAGED

##### Annexure Content

- A** Minimum facilities requirement
- B** Tentative PFD, OIL/PDN/STF/01
- C** Tentative Road Map, OIL/PDN/STF/02
- D** Tentative Boundary Layout, OIL/PDN/STF/03
- E** Tentative Plant Layout, OIL/PDN/STF/04

**MINIMUM FACILITIES ENVISAGED**

The tentative minimum facilities envisaged for fulfillment of objective behind creation of the STF are shown below. The section is forwarded to the bidders to visualize the system process and tentative job requirement. The EPMC consultant may suggest better facility/technology, based on their study, to make the system foolproof in all respect.

1.0 Minimum facility requirement:

1.01 Creation of Secondary Tank farm with dehydration facility:

**Basic Process Philosophy:**

The Secondary Tank Farm is envisaged with a facility for storage of crude as well as separation of free and emulsified formation water from crude oil. The STF is planned for safe storage of 40,000 KLS crude oil, dehydration plant with designed handling capacity of 10,000 KLPD wet crude in the range of 0 to 50% BS&W v/v. The dry crude will be pumped out to the balance tanks at NHK Central Tank Farm (CTF). Two LACTs will be installed at NHK CTF for pumping out to the OIL#s trunk pipeline and to Digboi refinery.

The crude oil storage facility will consist of 6 (six) numbers of crude oil storage tanks. Out of 6 nos. of storage tanks 3 (three) tanks will be used as Wet Crude Receipt Tanks. The treated dry crude oil will be stored in designated dry crude storage tanks. However, the tanks will be interchangeable and facility will be provided for using any of the tanks as dry or wet crude. Temperature in all the crude storage tanks shall be maintained at 40 #45 OC to minimize evaporation loss. Crude oil despatch pumps shall evacuate the dry crude from the treated crude oil storage tanks.

Formation water separated out of the dehydration process shall be received in the effluent 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 in formation water disposal wells and/or to the nearby installation for safe disposal as the case may be.

The Plant shall be integrated, self-containing, self-sufficient and will ensure zero discharge of pollutants to the environment. The Crude Dehydration process shall ensure quality stipulation of 0.15% (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 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 & 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) with BS&W content of 0.15% or less in the treated crude as well as oil content of less than 10 ppm with NIL sludge content in the output water all throughout the plant operation.

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 EPMC will design the plant on the basis of above philosophy and the minimum facilities as indicated in the Annexure #A#.

Overhead water storage facility has to be created to meet water requirement for day-to-day process, utility/service and fill-up /charging/ 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 fire fighting water requirement during emergencies. The static water reservoir capacity should also provide the storage for processed/clarified storm water. The effluent water after treatment must meet requisite specification for dispatch to OIL#s nearby installation/disposal wells.

The plant premises & boundary will be covered by green plantation and green belt respectively, which will be developed in line with globally accepted norms for environmental protection. A peripheral road will be constructed by OIL outside the boundary wall for security patrolling of the Plant.

The secondary tank Farm will be interconnected with the various piping network from different fields and also to the existing NHK CTF. Necessary land maps will be available at OIL#s office. A schematic land map showing the proposed plant location is enclosed as Annexure-D. Following pipeline connections will be required and will be under the scope of the EPC contractor.

- I) Connection of STF at inlet battery limit with piping network of various OCS and Connection of STF at outlet battery limit with NHK CTF.
- II) Modification of piping network at existing NHK CTF to convert the existing storage tanks to balance tanks, as required.
- III) Installation of LACT at NHK CTF for custody transfer.

01.02 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.

- ? Tank Farm (i.e. Crude Oil Storage Tanks) of 40,000 KLs safe holding capacity consisting of Six (6) nos. with economic design & sizing & complete with accessories, safety implements & corrosion prevention system.
- ? Crude Oil Circulation Pumps for charging crude from untreated crude receipt tanks to dehydration unit & recycle.
- ? The entire dyke area will be brick soled with separate drains for oil and storm water.
- ? Chemical dosing facility at STF battery inlet for prevention and control of growth of SRB (Sulphate Reducing Bacteria), scale formation.
- ? Electrostatic Crude Dehydration Units c/w demulsifier dosing facility and necessary arrangement as may be required to bring down temperature in Treated Crude Storage Tanks to 40-45°C.
- ? Crude Oil Despatch Pumps c/w suction charge pumps for transferring crude from treated crude storage tanks through OIL#s pipeline to NHK CTF.
- ? 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 & deoiler dosing pumps, for de-oiling & de-sludging of separated formation water out of dehydration process & other plant effluents. Provision should be kept for re-injection of the clarified water.
- ? Waste & Sludge management system.
- ? Indirect Bath Heaters for pre-heating of crude.
- ? Steam Generating Boiler 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 Facility.
- ? Source, Storage & Supply System for firefighting, process & potable water.
- ? Electrics and Illumination.
- ? Instrumentation, Control & Communication system for plant management. & fail-safe operation through control room operation.
- ? 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.
- ? Interior designing & furnishing of offices & control room.
- ? Operation & Maintenance (O&M) of the plant for a period of six years.
- ? Joint calibration of critical equipments such as WIOM (Water In Oil Monitor) & OIWM (Oil In Water Monitor) by OIL, O&M contractor & OEM of the equipment.
- ? **For NHK CTF:**
- # LACT (Lease Automated Custody transfer) facility at CTF/PS-1 separately for 2 (two) trunk lines.
- # Installation of High Mast lighting system (30 Meter) in NHK CTF.
- # Construction of a double storied control room cum installation manager#s office at NHK CTF.

Utility Redundancy provision at STF shall be made for only such facilities as mentioned in their respective scope of work and Annexures thereto in this Terms of Reference and Technical Specifications.

The Plant, wherever referred to in this tender, shall mean all of the above facilities / infrastructure etc. and such others that would require to be set-up / created / provided for integration, start-up, shutdown, safety & maintenance of the plant.

01.03 OIL shall provide for this project a barren piece of land measuring approx. 180 bighas with boundary wall, gates & an approach road. OIL shall make electric power of 1 MW (maximum) available from OIL's source at a single point inside the plant boundary for plant operation. For any blackout situation arising out of power failure, there should be provision for providing power from gas engine driven with acoustic enclosure captive power plant of suitable capacity for uninterrupted operation of the entire plant. The design of the plant should be made so that electric power requirement should not exceed 1MW. However in case of additional power is required the same has to be provided by gas engine driven prime mover instead of electric motor wherever possible. In such cases gas engine should be provided with acoustic enclosure.

01.04 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 EPMC.

01.05 A tentative schematic PFD, ROAD MAP, LAND MAP & PLANT LAYOUT for the STF is enclosed as Annexure B, Annexure-C, Annexure-D & Annexure-E respectively. The schematic PFD & LAYOUT is indicative only and is subject to changes as per the plant design.

01.06 Information for Design consideration:

(A) Location: The STF is at a distance of about 12 KM from Duliajan on the Duliajan- Naoholia road. Approximate land available is 180 Bighas. Please refer to the LAND MAP in Annexure # D.

(B) Specification of in-coming wet crude quality:

Wet crude quality data:

	Min.	Max.
i. Density at 15 °C	: 0.8547	0.9236
ii. API Gravity	: 21.6	34.0
iii. Pour Point, °C	: 0.0	33.0
iv. Wax content % mass	: 6.2	15.2
v. Asphaltine content % mass	: 0.2	1.4
vi. Resin content % mass	: 2.8	6.33
vii. Plastic Viscosity(cp)/ YV(Dynes/sq.cm)	: 3/<2 at 24°C	75/285 at 24°C
viii. Average Salinity (ppm)	: 3000	3500

The wet crude mixture may contain formation water up to maximum 50% by v/v out of which around 40% may be in free state and the rest in emulsified state.

(C) The composition of gas by volume available at site will be nearest to:

<b>Composition</b>	<b>Volume</b>
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 %
i- Pentane	0.16 # 0.18 %
Hexane	0.54 - 0.59 %
Nitrogen	1.08 # 1.19 %
CO2	0.46 # 0.51 %
Gas gravity	0.62 # 0.68 %
Gross Calorific Value	9,562 # 10,569 KCAL/SCUM
Net Calorific Value	8,646 # 9,556 KCAL/ SCUM

**NOTE:** The EPMC will collect other data related to Meteorological, seismic, soil data, HFL (Highest Flood Level), average rain fall, ground water level, LACT, etc required for designing the plant.

2.0 The following are the minimum facilities envisaged for the STF. It will be the bidder's responsibility to recommend and provide any additional facilities that might be required for the satisfactory and safe operation of the STF. The bidder 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: Dual polarity type Electrostatic Emulsion Treater shall be used for dehydration of wet crude with total design operating capacity 10,000 KLPD. 30% 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 0.15 % (w/w) or less. BS&W content of inlet wet crude may vary widely upto a maximum of 50% v/v. The Electrostatic Treaters design and selection should be capable of handling such wide variation of wet crude quality to provide dry crude having BS&W less than 0.15% w/w.

(II) Indirect Bath Heaters : Natural gas fired, saddle/skid mounted, multiple pass tube & glycol/water bath shell type heaters. There will be separate bath heater for each EET including standby unit and extra 2 (two) nos. of bath heaters will be used for pre-heating the input crude at battery limit from 300° C to 500° C.

(III) **Crude Oil Storage Tanks:** 2(two) nos. of Floating Cone Roof Tanks of 10,000 KLs capacity each and 4(four) nos. of Floating Cone Roof Tanks of 5,000 KLs capacity each. 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.

(IV) **Effluent Treatment plant (ETP):** Formation water separated from dehydrators as well as other oily plant effluents shall be collected through an Effluent Collection System network and fed to the Effluent Treatment Plant (ETP). The ETP will be of suitable design & economic sizing to de-oil & de-sludge the effluent water to the following output limits.

Oil Content : less than 10 ppm

Sludge Content : NIL

Chemical/ Bio-chemical parameters : as per Pollution Control Board Norms

The formation water separated from Dehydrators will be collected in minimum two (2) nos. of Effluent Holding Tanks having minimum 5000 KLs total holding capacity. The Holding Tanks shall have the skimming facility for the accumulated oil. The ETP shall also include minimum two (2) nos. of clarified water storage tanks of total 5000 KLs capacity. De-oiler dosing pumps with de-oiler tanks (of SS) shall also be provided. Internal corrosion resistant coating shall be provided wherever required.

Online monitoring device will be installed to monitor oil ppm after each stage of ETP process and also oil in water monitor in the outlet clarified water disposal line with mass flow meter. There shall be auto-recycling facility to re-process the water in ETP to bring down oil ppm to desired level.

The ETP shall be of capacity to handle 5400 KLPD formation water with 30% redundancy.

(V) **Piping:** The scope of piping work includes supply of materials viz. pipes, pipe fittings, valves including MOVs etc.; unloading at site, safe-storage, site transportation, fabrication, erection, testing & commissioning of the complete over-ground and underground piping work for the entire plant, including coating-wrapping (of underground sectors up to 30 cm above the FGL), insulation on over ground pipes and, painting as well as all supports and supporting structures. All piping work required for tie-ins, integration, operation, start-up, shutdown, control and safety of the plant. Suction & delivery piping shall be designed for vibration free operation.

(VI) **Boilers:** The Boilers must be fire tube type loco Boilers. The Boilers must be provided with suitable forced draught Natural Gas Burner to get the optimum evaporation (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.

(VII) Instrumentation : EPMC shall design control system of distributed nature so that failure of one section shall not shutdown the entire system. 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.

A comprehensive Tank farm management system shall be integrated with the SCADA software of PLC/DCS system. The Tank farm management software shall reside in the DCS/PLC of Master Control station. The data from all the transmitters of the Tanks shall be available in the Control room Workstations for Data acquisition, analysis and control. The system shall be able to measure Tank levels, temperature, pressure and Water levels in metric units. Based on the measured values the system shall provide inventory calculations (Volumes, density and mass).

EPMC shall design dual redundant ONLINE UPS with sufficient capacity to provide 12 hours power back #up.

DCS / Main PLC shall have the provision for connectivity to upcoming 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).

EPMC needs to clearly define the installation, commissioning & calibration procedures for all field instruments, DCS system, PLC etc. as per international instrumentation practice.

#### GENERAL SCOPE

EPMC shall design all the necessary P&ID, Process Flow & Plant layout. EPMC need to provide the design basis for designing the instruments and needs to provide comparison studies between the technologies.

All the field instruments and the control system has to be finalised during detailed engineering stage with the approval of OIL and to be procured from the OIL approved Vendor list. Only instrument quality dry air shall be used for the part of instrumentation system that will be pneumatically operated. EPMC shall design the air system with proper standard.

The Fuel gas scrubbers and Instrument air scrubbers shall be provided with level control loops for auto draining of liquid collected.

EPMC shall design Instrumentation and control system with a provision for accommodating 20% extra I/O in future.

Provision for Asset monitoring with latest Asset Management software.

All the field instruments shall be provided with lightning protection circuits and should be designed and manufactured to operate in 100% or above Relative Humidity environment.

All the pressure measuring instruments for crude oil application (specially for CODP area) should be of diaphragm sealed type and should have a minimum over range protection up to 130% of the range. They should be installed with isolation valves.

All field instruments should be designed to be immune to Radio frequency & Electromagnetic interference with field strength of 15 volts/meter or less over frequency range of 50 Hz to 450 MHz.

EPMC needs to provide list of recommended spares, list of special test equipment for maintenance.

Designing of Smoke/Heat Detectors, online Gas Detectors, Flame Detectors, hooter etc. as required for the safe and efficient operation of the plant.

EPMC needs to design Instrumentation Earthing system separately than the Electrical Earthing system.

SCOPE of EPMC shall include the supervision of Installation and Commissioning of all the Field Instrumentation, DCS system, Individual PLC etc.

During the plant start up, EPMC needs to supervise all the instruments calibration, controller alignment, trip point settings shall be trimmed so as to meet the operation requirement.

Loop checking of instruments and checking the functional performance of all elements comprising the loop and ensuring proper configuration, functioning and interconnection shall be responsibility of EPMC along with EPC contractor.

EPMC needs to specify clearly for supplying all the necessary Software licenses along with the supply.

### **OBLIGATIONS OF EPMC**

EPMC needs to provide minimum two (2) Instrumentation Engineers one is having minimum ten(10) years and other should have minimum five (5) years of experience in the field of Designing and Engineering of Instrumentation and Control system for E&P Installation. EPMC shall provide the relevant CVs for OIL#s scrutiny.

EPMC shall not replace their personnel during project implementation stage. If such need arises, EPMC shall replace with equally qualified person and prior information to OIL.

Instrument air supply system: 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.

Alternatively the available natural gas may be processed to make it suitable for powering the pneumatic systems. Such a system may be provided for as an optional item.

(VIII) Electricals and Illumination :

EPMC 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.

Power for illumination etc. may be made available from OIL#s existing sources. OIL will provide power at 1 MW at one point. Power shall be tapped from nearby existing 11 kV Feeder to a suitably rated HT Vacuum Circuit Breaker (VCB) Panel consisting of 2 Nos of Incommer , 1 No of Bus coupler and sufficient nos (minimum 3 nos) of Out Going Feeders . After that power shall be step down to 433 V LT through suitably rated 11kV/433V Transformer and finally distributed through LT Electrical Switch Board at the sub station. This power shall be used for all the loads.

However provision shall be made for supplying critical loads through suitably designed GG set with 100% standby.

The electrical equipments for hazardous areas shall be selected as per IS-5571 and petroleum rules .

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 bidder should plan illumination with latest type of luminaries and techniques and should ensure that minimum efforts are required for the maintenance of the lighting system. As far as possible bidder should try to cover the entire area with High Mast lighting system (30 Meter). The bidder should give details of the average level of illumination considered for different areas and buildings/sheds.

Peripheral Lighting is to be considered as per prevailing codes and practices using sufficient nos. of luminaries on Double Pole Structures of required Heights.

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.

Suitably rated 2 nos of Dry type Transformers ( 1 in operation and 1 in stand by) of voltage ratio 11 kV/433 V shall be provided.

The lighting system should conform to relevant IS, Codes and practices.

The voltage for lighting shall be 250V 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.:**

- # Power will be made available only for Plant operation. Power for illumination during project execution will not be provided by OIL.
- # 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 Equipments & luminaries must have DGMS logo embossed on their body.
- # All Imported Electrical Equipments 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 bidder has to indicate all the IS codes in their quotation 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 & equipments shall be accommodated in a cement concrete house and sheds.
- # Bidder must agree for minor shifting of Highmasts that is mutually agreed upon during the time of Installation.
- # All motor and lighting circuits must be protected by suitably rated ELCB/ELRs.

The following documents are required along with the offer:

- 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 Equipments viz. Motors, Panels, Switchgears, MCC, Light fittings, cables etc. along with manufacturers' catalogue.
- E) Cable Schedule.
- F) Earthing 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 CMRI 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.

(IX) Fire fighting & protection facilities:

All the hazardous area shall be covered by Water/Foam Monitors & Hydrants including two nos. of 1000 GPM aqua foam monitors near tank area (including hose boxes with type B SYNTHETIC hoses and nozzles) with Fire Water Ring Main pressurized at 7 Kg/cm<sup>2</sup> residual pressure with the provision of Diesel Pumps with BIS standards. The systems shall be maintained at 7 Kg/cm<sup>2</sup> pressure at hydraulically remotest point with the help of Electric Motor driven Jockey Pump.

All the hazardous area shall be covered by Fire Detection Facility addressable at Control Room with manual call point and Fire Alarm system.

Multi-feeder type Medium Velocity Water Spray System with Triple Ring shall be provided with drenching system for each crude oil tanks.

Foam System (Semi-Automatic type with Foam induction system, Centralized foam storage facility having UL listed Fluoroprotein FOAM and alternate foam

pouring arrangement through Fire Tender) shall be provided with all Foam Tanks, Piping & its fittings of stainless steel. Foam Pump shall be Motor driven with one diesel engine driven set for operation in disaster conditions.

Automatic Fire Detection and alarm system shall be provided at for Control Room etc.

#Above Ground Fire Storage Tank# shall be of 4 hours capacity of Total Hourly Fire Water requirement.

#RCC Static Ground Fire Water Storage Reservoir Capacity# shall be of 10 times of the #Total Above Ground Fire Storage Tank Capacity# for supplementary requirement for prolonged Fire fighting.

Tank Farm shall be equipped with the First-Aid Fire fighting equipment as per OISD # 189.

All the above systems / facilities shall be as per NFPA, OMR, BIS and OISD # 117 & 189 norms.

(X) Captive Power Plant:

The EPMC will design the plant to restrict the power requirement to 1 MW. However, to tackle black out situation as well as to run the critical equipment a suitable sized natural gas engine driven generating set(s) with synchronizing facility should be provided. Fuel (natural gas) required for the Gen Set will be provided by OIL. Moreover, it should take care of power requirement in excess of 1 MW, in case the load requirement of designed STF exceeds 1 MW. 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., Lub 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 over head 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.

This system should be compatible with the OIL#s power supply system so that it can be easily changed over to either system.

(XI) Crude Oil Dispatch Pump:

Suitable sized Natural Gas engine driven reciprocating pumps with 30% standby units should be installed in one row to transfer 10,000 KLPD crude oil. As the crude oil will be dispatched to a distance of around 12 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 over head 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., Lub 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. DGMS approved 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.

(XII) 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 Iron free 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).

(XIII) 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.

(XIV) Communication and Data Connectivity Facility:

(a) Communication /ERP Connectivity: The EPMC should study the feasibility / requirement for communication tower and equipment building block within STF and OFC (Optical Fibre Cable) layout along ROW for voice and data connectivity with OIL. However, the voice and data connectivity from STF to OIL#s network at Duliajan will be extended by OIL.

- (b) Intrusion detection / Security control system: The EPMC should study the complete requirement of Security Control System for the STF. The system should have surveillance cameras placed along the periphery of the campus in the watch towers and all entrance points which should be monitored both at security gate and control room.
- (c) Computers: The scope of supply will include 6 desktop computers for the plant engineers, one laptop for installation manager over and above 6 on line monitors for instrumentation control. One extra Laptop computer with one LCD Projector should also be provided for the conference room.
- (d) Telephone: OIL will provide telephone connection through OIL network. BSNL telephone connection will be provided by the EPC contractor at control room and IM#s room. Intrinsically safe handsets will be provided by the EPC contractor for interplant communication by using OIL#s own available frequency.

(XV) Crude Oil Circulation Pumps:

Crude oil circulation pumps shall draw the crude oil from the untreated crude oil storage tank and shall pump the same through the dehydration units and upto the treated crude oil storage tank or recycle (of variable throughput), if required. Utility redundancy of 50% of the operating capacity shall be ensured for the pumps. EPMC shall evaluate suitable centrifugal pump as per API 610 (eighth edition) and durable at the temperature & other duty conditions complete with cartridge type mechanical seal. The pump shall be complete with FLP motor (of CMRI certification & DGMS approval for use in hazardous area).

(XVI) Civil & Structural:

EPMC 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 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) Detailed structural analysis and design.
- (e) Detailed design for sanitary plumbing.
- (f) Detail design electrical works.
- (g) Detail interior & landscaping planning & designing.
- (h) Planning & designing of drainage system.
- (i) Detail designing of security System.
- (j) Detailed planning and designing of internal road net works.
- (k) Designing of foundations for various equipments.
- (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 may be as per Assam Govt. Public Works Departments (APWD) recent Schedule of Items and rates, items not covered in the APWD schedule may be taken from CPWD-DSR Rate with incorporation of necessary cost index for this area. Further items not covered in the aforesaid Schedules to be based on market rate analysis which should be supported with proper documents.
- (n) All structural working drawings regarding buildings, tank foundation and any other structures shall have to be authenticated and approved by reputed bodies like IIT (Indian Institute of Technology), EIL (Engineers India Ltd), etc.
- (o) Getting the final approval drawings from OIL before release for execution.
- (p) All other civil jobs for successful completion of the project.

**For NHK CTF :**

- a) A double storied control room cum installation manager's office should be constructed at NHK CTF.
- b) The control room and the installation manager room at the NHK CTF should be air conditioned and will also include a non air-conditioned room for operating staff.
- c) Separate lavatory will be provided for officers and staff at NHK CTF.

**For STF :**

- a) Green Belt: A 25 m wide green belt will be created around the perimeter of the STF.
- 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 double storied building capable of housing the Control Room (Glass panel room preferable at the 1st floor). Aesthetically designed Engineers' office including separate rooms for Installation Manager, Mines manager, Conference room for at least 20 persons (all preferably at first floor), Staff room, Store room, Chemical laboratory, Electrical substation and UPS room, Canteen, Work-shop, lavatory in each and every building with modern amenities etc. should be provided. The Control room, Engineers' office and Conference room must be air-conditioned. A suitable building to house the operator room with lavatory facility etc.
- d) Landscaping: The details of landscaping will be forwarded to OIL for necessary approval.

**Scope:**

- A) Soil Investigation: Detail soil testing shall be carried out as per relevant code at site by EPMC in this field to find out Bearing Capacity of soil. The report

shall be submitted to OIL for final approval prior to utilise the data for design of structures.

- B) Design and construction of pile foundations if required shall be carried out as per relevant IS & other codes.
- C) The effect of ground water table shall be duly considered while designing the structures including the various foundations.
- D) 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.
- E) Other Points: All building shall be RCC/Steel framed structure. Minimum grade of concrete used for various types of structures, shall be M20 (Except drains).
- F) 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 8.5M for main road, 6.5 M for sub-ways which includes side berm of 1.5M & 1.0M width on either side respectively.

G) 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.

H) 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.

(XVII) Interconnection/ revamping of piping at NHK CTF (Central Tank Farm) including custody transfer facility.

LEASE AUTOMATED CUSTODY TRANSFER (LACT):

LACT facility will be provided in Central Tank Farm (CTF) to lease oil from the tank battery to OIL#s main trunk line and Digboi refinery. In designing the LACT, EPMC shall consider BAT.

LACT installation codes will be as per relevant API standard

EPMC will collect necessary data viz. flow rate, operating pressure, gravity, temperature of product, etc. and study existing arrangement of installations at CTF, Duliajan for designing the LACT facility.

Accessories required for LACT installation will include but not limited to charging pumps, strainers, meters, BS&W monitor with 0.1 % accuracy with divert valve for diversion of higher BS&W content crude to untreated crude tank, probes, meters, Check Valve, sample system, electronic temperature averager, Pressure Gauge, Back pressure Valve, PLC equipped Control panel, skid and piping, etc.

LACT unit should be mounted on a Skid which will allow the unit to be moved easily.

The PLC equipped control panel will have the following minimum functions:

- # Start and Stop Off High and Low Level Switches
- # Hand-Off-Automatic Switch
- # BS&W Divert Controls
- # Meter Fail
- # Monitor Failure
- # Internal Battery Back-Up for Power Loss

(XVIII) Site Work:

Cost of all site work as per Scope of Work under Terms of Reference & Technical Specifications (i.e. Section-IV of this tender document) and in accordance with General & Special Conditions of Contract (i.e. Section-III & Section-IV respectively of this tender document) related to (but not limited to) site transportation, safe storage/ security of all materials at site, erection/ construction/ creation/ installation, testing, acceptance tests and trial run up to successful commissioning of the Plant including rectification of defects/malfunctioning during the specified commissioning period.

(XIX) Infrastructure for security requirements:

Two nos. RCC/Brick work security huts (size 2.5 m x 2.5 m), sufficient nos. of watch towers to cover the entire boundary equipped with swivel type search-lights of adequate power and one barrack (double storied) with toilet, bathroom, kitchen and dining space capable of accommodating 60 security personnel. 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. CC camera (installed at the watch towers) monitor should be installed at Control Room and main gate Office.

(XX) General Guidelines:

- 1) Provision of pumping out over flown water in Static Water Reservoir through clarified water disposal line into disposal/injection wells as and when required.
- 2) Necessary Monitoring Meters in Effluent Treatment Plant.
- 3) All control valves will have manual by-pass arrangement,
- 4) Provision will be kept for by-passing of the incoming streams (individually or totally) to the distribution system such as Heat Exchanger, Cooling device, Bath Heaters, Dehydrators, etc.
- 5) Strainer will be provided in the wet crude oil inlet at battery limit. Bypass line should also be provided with additional strainer.
- 6) Provisions for dosing of Oil Soluble Demulsifier shall be provided in the inlet crude oil manifold of the plant for effective dehydration in the dehydration facility.
- 7) It is expected that during processing of crude, scale will be deposited in the pipings, mainly in the piping of separated formation water. Suitable scale inhibitor as identified by OIL#s R&D Depts. should be injected in the crude inlet line, if required, for smooth operation of the plant. Accordingly provisions for injection of scale inhibitor should be provided.
- 8) Provisions for injection of flow improver should be provided in the delivery crude oil manifold of the plant. Suitable flow improver as identified by OIL#s R&D Depts. will be injected in the crude delivery line of the plant, if required, for safety of operation.
- 9) Provisions for injection of corrosion inhibitor should be provided in the delivery crude oil manifold of the plant. Suitable corrosion inhibitor as identified by OIL#s R&D Depts. will be injected in the crude delivery line of the plant, if required, for safety of operation.
- 10) The power fluid for pneumatic systems will be compressed air. An alternative system using natural gas as the power fluid shall also be considered.
- 11) Recycling facility shall be provided for Dehydration and ETP process.
- 12) Provision for steam tracing into OWS. MS OWS piping of suitable size to collect oil discharges and sludge at single sump with suitable sump pumps for pumping out the crude from sump to crude storage tank with provision for strainers.
- 13) Interchangeability shall be provided in crude tanks, dehydrators, indirect bath heaters and in Effluent Treatment Plant.
- 14) Additional facility for emergency shut down of Crude oil dispatch pump prime mover from Control Room.
- 15) Cleaning facility to be considered during designing of the equipments like Heat Exchanger, Dehydrators, etc.
- 16) Name plate and rotation arrows : A name-plate shall be securely attached at a readily visible location wherein the manufacturers name, machine serial number, maximum and minimum design limits and rating data, maximum allowable working pressure and temperatures, hydrostatic test pressure etc. should be clearly indicated. Rotation arrows indicating direction of rotation of major items/direction of process flow should be cast in or attached.

- 17) Fixing of Fire water Network Diagram in Fire Engine location and in Control Room. Fixing of proper safety/operating instructions board/data sheets at different areas.
- 18) Provision for railings, walkways, crossovers, sheds etc. required for safe operation of the Plant.

**ANNEXURE -B**

TENTATIVE PFD FOR STF (Drawing No.1)

**NOTE:** Interchangeability among the Crude tanks, Dehydrators and Bath Heaters are shown by placing valves.

**ANNEXURE -C**

INDICATIVE ROAD MAP FOR STF (Drawing No. 2)

**ANNEXURE -D**

Tentative land map ( Drawing No. 3)

**Annexure E**

Schematic plant layout (Drawing No. 4)

&&&&&

**SECTION-V**

**Schedule of Rates**

<b>Sl</b>	<b>Description of Service</b>	<b>Unit</b>	<b>Qty</b>	<b>Unit Rate (Rs.)</b>	<b>Total Amount (Rs.)</b>
10	<b><u>Execution Phase-I:</u></b> As per TOR which involves the following jobs: Escape evaluation and Rescue analysis for STF as well as HAZOP study.	LS	1		
20	<b><u>Execution Phase-I</u></b> : As per TOR which involves the following jobs: Selection of BAT, FEED, Detailed Engineering and specifications for the various aspects viz. equipment, construction, structural, piping, mechanical, electrical, instrumentation etc. with all the relevant drawings for construction of Installations and presentation to OIL for approval	LS	1		
30	<b><u>Execution Phase I</u></b> : As per TOR which involves the following job: Formulation of Health, Safety and Environment Policy.	LS	1		

40	<b>Execution Phase-I</b> : As per TOR which involves the following job: Finalization of Project schedule (Bar Chart of the whole project)based on Engineering Bid Package as above. Preparation of Tender document for inviting bids from EPC contracts. Issue Tender document to EPC, Evaluation of bids and selection of EPC contractor.	LS	1		
50	<b>Execution Phase-II:</b> As per TOR which involves the following jobs: Project Management and execution including approval of residual engineering & drawing, technical specifications/ bid evaluation etc. if any, prepared by EPC contractor. Inspection & Supervision of Contractor's works on Residual Engineering, supply, Constructions and Erection of various equipment/materials etc under guidelines from OIL.	Mon	17		
60	<b>Execution Phase-II:</b> As per TOR which involves the following jobs: Preparation of documents and getting statutory approval for STF and the individual equipment/instrument.	LS	1		
70	<b>Execution Phase-II</b> : As per TOR which involves the following jobs: Preparation of Tender document from O&M contractor and issue of Tender document.	LS	1		
80	<b>Execution Phase-II</b> : As per TOR which involves the following jobs: Evaluation of bids for technical and commercial compliance and selection of O&M contractor.	LS	1		
90	<b>Execution Phase-III</b> :As per TOR which involves the following jobs: Pre-commissioning and integration of STF including documentation, preparation of equipment log book, preparation of Safe Operating Procedure, preparation of manpower deployment pattern, handing over operation & maintenance manual for the major equipment etc.	LS	1		
100	<b>Execution Phase-III</b> : As per TOR which involves the following jobs: Engagement of O&M contractor for trail run for 3 months uninterrupted continuous operation to the desired performance level & commissioning of STF.	Mon	3		
110	Service Tax (as per applicable rate- 12.36% )				

Estimated contract value "**T**" = **A + B + C + D**

Where,

- A** - TOTAL CHARGES FOR PHASE-I (i.e. FEED & Bid Document Preparation)
- B** - TOTAL CHARGES FOR PHASE-II (i.e. Project Management at Site)
- C** - TOTAL CHARGES FOR PHASE-III (Commissioning).
- D**- SERVICE TAX

**Note:-** Bidders (EPMC) to quote rate per month for supervision/monitoring EPC contractor till completion of the project in case of delay beyond the schedule completion period of the project, if essential. This rate (prorated for incomplete month), will be applicable for payment to EPMC contractor if there is any delay in completion of the Project by EPC contractor beyond schedule completion time i.e beyond 30 months, due to any unforeseen reason not attributable to EPMC Contractor.

## **SECTION - VI**

### **BID EVALUATION CRITERIA (BEC) / BID REJECTION CRITERIA (BRC) FOR ENGINEERING AND PROJECT MANAGEMENT CONSULTANCY (EPMC) SERVICES FOR STF**

A) BID REJECTION CRITERIA (BRC): The bid shall conform generally to the specifications and terms and conditions given in the bidding documents. Bids will be rejected in case services offered do not conform to the required parameters stipulated in the Terms of Reference. Notwithstanding the general conformity of the bid to the stipulated Terms of Reference, the following 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.

#### **1.0 TECHNICAL :**

1.1 QUALIFICATION OF THE PRIMARY BIDDER: The bidder must be an ISO-9001 or equivalent certified consulting firm providing Engineering and Project Management Consultancy (EPMC) services in the creation of surface

facility in upstream oil & gas sector for last 5 (five) years as on the Bid Closing Date.

- 1.2 The bidder shall also have experience in successfully execution of at least 2(two) EPMC consultancy jobs incorporating Front End Engineering Design (FEED), state-of-the-art Best Available Technology (BAT), preparation of Engineering Bid Package, EPC contractor selection, Detailed Engineering and Project Management including selection, procurement, installation and commissioning in surface facility projects in upstream oil & gas sector during last 5 (five) years. Documents in support of these criteria to be submitted.
- 1.3 The bidder shall be in a position to engage consultants as per the experience and qualification requirements as mentioned in Enclosure-A. Confirmation to this effect to be submitted along with the Curriculum Vitae of each consultant.
- 1.4 If the consultant(s) are not regular employee(s) of the bidder, in such case bidder may engage consultant(s) with requisite qualifications and experiences directly or through other consulting firm(s) under a pre-tender agreement. This agreement shall specifically be made for complete execution of the project under the tender.
- 1.5 Bidder should indicate the capabilities and reliability of the software packages to be used, if need be, for generating the fluid properties, multiphase flow co-relations etc. This should in turn be substantiated with performance report from the projects completed on the basis of simulation carried out with the help of such packages.
- 1.6 Bidders to note that failure to furnish all information/ details/ documents / certificates required in the bidding document or submission of bids not responsive to the bidding document in all respect may result in rejection of the bids. Conditional bids indicating exceptions/ deviations to conditions will be rejected.
- 1.7 The bidder must provide a guarantee that all systems provided in the Plant will be adaptable, with minor modifications at the most if need be, to future technical developments in the next 10 (ten) years (shall be finalized in pre bid conference). Any such modifications that might be required must be commercially viable. The bidder along with the Bid, which will require approval of OIL, must provide a technical justification about this adaptability.
- 1.8 The bidder must provide a guarantee for smooth running of the Plant, without material failure, system defects/faults that affect operation of the plant, for a minimum period of 2 (two) years from the date of successful commissioning.
- 1.9 Offers with completion schedule longer than the time stipulated as per bid document shall be rejected.

- 1.10 Bidders must provide Bar Chart indicating all the activities and time line including major milestones for Phases I, II & III separately as per project schedule given in clause 5.0 of Section - IV (Terms of Reference).
- 1.11 The Bidder should categorically confirm acceptance of the following two clauses:
- a) Liquidated damages for delays: In the event of the project getting delayed beyond the agreed Time Schedule solely due to acts or omissions to act by Consultant, OIL shall be entitled to recover liquidated damages at the rate of 3/4 % (three fourth percent) of Consultant fees per week of delay subject to a maximum of 10% of Consultant fees.
  - b) The successful bidder against this EPMC tender will be involved in selecting an EPC contractor for the project. The EPMC consultant shall not involve/participate directly or indirectly or in any forms against the tender for the EPC contract.
  - c) The Bidder should confirm unconditional acceptance of full responsibility of executing the #scope of services# of this tender.
  - d) OIL may depute one or more than one representative (s) / engineer (s) to act on its behalf for overall co-ordination and operational management at location. OIL#s representative will be vested with the authority to order any changes in the scope of work to the extent so authorized and notified by OIL in writing. He shall liase with the Contractor and monitor progress to ensure timely completion of the jobs. He shall also have the authority to oversee the execution of jobs by the Contractor and to ensure compliance of provisions of the Contract.

## 2.0 COMMERCIAL # BID SUBMISSION:

- 2.1 Tender is being processed according to a single stage two-bid system. Bids shall be rejected outright if the technical bids contain the prices.
- 2.2 Bidder shall offer firm prices. Price quoted by the successful bidder must remain firm during the execution of the entire contract and not subject to variation on any account.
- 2.3 Bid security shall be furnished as a part of the technical bid. The amount of bid security should be as specified in the bid document. Any bid not accompanied by a proper bid security will be rejected.
- 2.4 Bids received after bid closing date and time will be rejected.
- 2.5 Any bid received in the form of Telex/Cable/Fax/Email will not be accepted.

2.6 Bids shall be typed or written in indelible ink and original bid should be signed by the bidder or their authorized representative on all pages.

2.7 Bids shall contain no interlineations, erasures or over writing except as necessary to correct errors made by bidders, in which case such corrections shall be initialed by the person(s) signing the bid. However, white fluid should not be used for making corrections.

2.8 Any bid containing false statement shall be liable for rejection.

2.9 Bidders must quote clearly and strictly in accordance with the price schedule outlined in Price-Bid Format of bidding document.

2.10 Bidders must declare in the Technical bid the rated consumption for electricity and natural gas required per equipment and their estimates for annual consumption in relation thereto, which would be under OIL#s scope of supply. Any bid not furnishing the same will be rejected. The bidder shall assure that during the actual operation & maintenance of the Plant, consumption of the above will not be in excess of the above rated consumptions as declared.

2.11 Bidder must accept and comply with the following clauses as given in the Tender Document in toto :

- (i) Performance Security
- (ii) Force Majeure
- (iii) Tax Liabilities
- (iv) Arbitration
- (v) Acceptance of Jurisdiction and Applicable Law
- (vi) Liquidated damage and penalty
- (vii) Termination
- (viii) Liability
- (ix) Withholding
- (x) Obligation of contractor

3.1 **Proforma-I** # The compliance statement should be duly filled up. In case bidder takes exception to any clause of bidding document not covered under BEC/BRC, then the 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 OIL. The loading so done by OIL will be final and binding on the bidders.

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

3.3 If any of the clauses in the BRC contradict with other clauses of bidding document elsewhere, then the clauses in the BRC shall prevail.

**B. BID EVALUATION CRITERIA:**

4.1 The bids conforming to the technical specifications, terms and conditions stipulated in the tender and considered to be responsive after subjecting to Bid Rejection Criteria will be considered for further evaluation as per the Bid Evaluation Criteria given below.

4.2 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 BID FORMAT incorporated in the SCHEDULE OF RATES (SECTION-V).

Estimated contract value **T = A + B + C + D**

Where,

**A** - TOTAL CHARGES FOR PHASE-I (i.e. FEED & Bid Document Preparation)

**B** - TOTAL CHARGES FOR PHASE-II (i.e. Project Management at Site)

**C** - TOTAL CHARGES FOR PHASE-III (i.e Commissioning).

**D**- Applicable Service Tax

**PAYMENT TERMS**

1. The phase wise prices of the bid should be in the following proportions:

**A** - Total Charges for PHASE-I : 30% of the total project cost T.

**B** - Total Charges for PHASE-II : 40% of the total project cost T.

**C** - Total Charges for PHASE-III : 30% of the total project cost T.

**D**- Applicable Service Tax.

2. The bidders are to quote the price inclusive of all taxes and duties including but not limited to customs duty, corporate/personal taxes, etc. excluding Service Tax. Bidders are requested to attach supporting documents, if they are exempted from payment of Service Tax is applicable failing which Service Tax will be applicable at normal rate.

(b) **PAYMENT SCHEDULE:**

PHASE - I: Payment shall be made proportionately on the basis of physical progress of the work of each activity with respect to the approved Bar Chart.

PHASE - II:

(i) Monthly payment for Service Line 50 shall be made proportionately on the basis of physical progress of the work of each activity with respect to the approved Bar Chart.

(ii) Payment for Service Line 60 shall be made on pro-rata basis.

(iii) Payment for Service Line 70 & 80 shall be made after successful completion of each job.

PHASE - III: Payment for Service Line 90 & 100 shall be made after completion of 3 months uninterrupted trouble free operation to the desired performance level.

\*\*\*\*\*

## **ENCLOSURE-A**

### **Experience & Qualification of the Team Members/consultants**

The bidder must deploy an integrated team for each phase of the work indicating areas of the study to be covered by each team member/consultant.

i) **Team Leader**: The teams should have a team leader. The team leader must have experience of at least 15 years in gas field surface facility planning and operations. He must have work experience of design (FEED), detailed engineering and project management. He must have worked as a Team Leader in at least 2 (two) successfully completed surface facility projects with proven BAT in upstream gas sector. He must be well versed with all aspects of study as described in TOR, including but not limited to data acquisitions, Oil & gas production installation and system designing, knowledge of different field proven technologies, comparison and evaluation thereof to identify BAT, 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: Each of the other team members individually should have experience of 5 (five) years in his / her professional field and must have work experience in as a team member at least in one successfully completed surface facility project in upstream oil sector. One or more members of the team must have experience of carrying out FEED for any of the following type of installations:

- a. Crude oil processing plant.
- b. Crude oil handling Tank farm.

iii) General Conditions:

a) The bidder will need to make provision for additional manpower that may be required for successful completion of the jobs as per terms and conditions of the contract of their own.

b) Curriculum Vitae of the personnel to be deployed by the bidder for the whole period of the project, who must meet the minimum qualification and experience requirement, as detailed must accompany the bid document. Organograms for all the three phases of the project, showing the project team split into various groups, will be forwarded along with the bid. All personnel to be deployed must be fluent in spoken English.

c) Bidder shall furnish a written undertaking in their bid expressing commitment to replace any of their personnel(s) at any point of time during the contractual period if, in the opinion of OIL, the said personnel(s) is / are not suitable to be member(s) of the Service team for any reason.

d) OIL will consider an EPMC consultancy as successfully completed if it has been successfully implemented to the satisfaction of owner and guaranteed performance was achieved after completion of the commissioning of the Plant and its facilities.

Commissioning of the plant will be deemed to be complete upon expiry of 3 (three) months of continuous trouble-free trial run/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, its 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 EPMC competent personnel.

In the event of malfunctioning/defects of any equipment (including operation of the stand-by facilities), components, instrument, process and other by-pass systems during the first three months operation of the plant with its DESIRED PERFORMANCE LEVEL (i.e. with BS&W content of 0.15% or less in the treated

produced crude & oil content of less than 10 ppm with NIL sludge content in the clarified effluent water), the date of completion shall be counted from the day of rectification of such malfunctioning/defects etc. and the commissioning of the plant shall be considered upon completion of three months of trouble-free operation, as stated above, from such day of rectification. The warranty period would commence after completion of three months of continuous trouble-free operation from the day of such rectification.

Any defects thereafter during the warranty period shall be dealt with in accordance with the warranty obligations under the contract and in case such defects are not rectified within a reasonable period as may be determined by OIL, the performance guarantees for 10% with the company (OIL) shall be invoked. The decision of OIL in this regard shall be final & binding on the Contractor.

e) OIL will consider a technology as proven if it is implemented in two different projects to the satisfaction of the owner.

f) To substantiate that a technology adopted was state-of-the-art BAT at the time of implementation, the EPMC must forward the following information;

- # Brief description of the projects and area in which BAT was applied.
- # Name of the fields where the technology was applied.
- # Name and address of the owner and operator of these assets.
- # Name and address of the Contractor who carried out the turnkey implementation of the projects.
- # Date of execution and schedule of the project jobs.
- # Certificate of owner that the technology was BAT at the time of implementation.

The bidder must also provide documentary evidence along with technical bid to substantiate their experience against above.

2.12 Bidders to note that as per invitation for bid (Notice inviting tender), any clarifications/exceptions/deviation to bidding document are to be sorted out during pre bid conference i.e. before submission of bids. Bidders to confirm unconditional compliance to OIL's all terms & conditions including all clarifications/ confirmations/modifications etc., issued by OIL after pre bid conference.

2.13 Bidder shall submit Copies of document duly authorized defining the constitution and legal status of the bidder, place of registration and principal place of business.

2.14 Bidder shall submit the present status of the ongoing projects as an Annexure showing the list of clients, scope of work from each job and cost of the completed and ongoing projects indicating time schedule for each project carried out to completion with the country wise break up as a part of the proposal.




-----  
Signature of the bidder

**PROFORMA - II A**

**BID FORM**

To  
M/s. Oil India Limited,  
(For Head (Contracts))  
P.O. Duliajan, Assam, India

Sub: Tender No. : \_\_\_\_\_

Gentlemen,

Having examined the General and Special Conditions of Contract and the 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 180 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 \_\_\_\_\_ 2008.

-----  
Signature

\_\_\_\_\_  
(In the capacity of)

### **PROFORMA II B**

#### **FORM OF PERFORMANCE BANK GUARANTEE**

To: M/s. OIL INDIA LIMITED,  
For HEAD (Contracts),  
Duliajan, Assam, India, Pin - 786 602.

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 \_\_\_\_\_ (calculated at 15 months after Contract completion date).

SIGNATURE AND SEAL OF THE GUARANTORS \_\_\_\_\_  
Designation \_\_\_\_\_  
Name of Bank \_\_\_\_\_  
Address \_\_\_\_\_

Date ..... Place \_\_\_\_\_

### **PROFORMA IIC**

### **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-IV 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 / Technical Specifications,
- (c) Section-III : Schedule of rates and
- (d) Section-IV : Special Conditions of Contract.

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                      For and on behalf of  
Company (Oil India Limited)              Contractor  
(M/s. \_\_\_\_\_)

Name:    Name:

Status:    Status:

In presence of                                      In presence of

1.    1.  
2.    2.

**PROFORMA - II D**

**FORM OF BID SECURITY (BANK GUARANTEE)**

To : M/s. OIL INDIA LIMITED,  
(for Head-Contracts), 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 \_\_\_\_\_ 2004.

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

HEAD (CONTRACTS)  
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.

&&&&&&